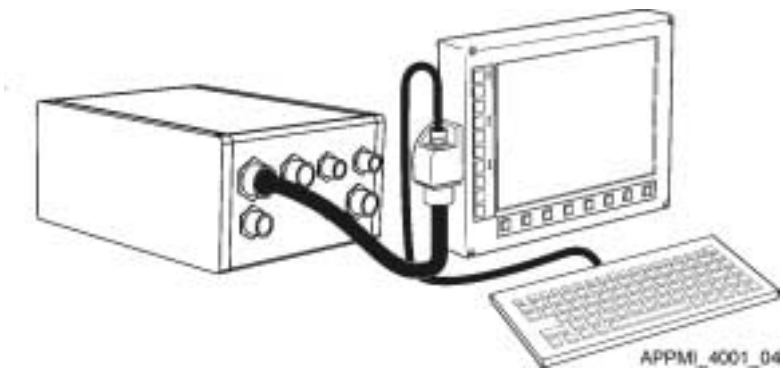
TM 11-7010-326-10

TECHNICAL MANUAL

OPERATOR'S MANUAL
FOR

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2
(EIC NA)



HEADQUARTERS, DEPARTMENT OF THE ARMY

28 JUNE 2002

WARNING SUMMARY

SAFETY SUMMARY GENERAL SAFETY PRECAUTIONS

For safety precautions during the maintenance of electrical/electronic equipment see TB 385-4 (Army).

For care and handling of electronics equipment see TM 43-0158 (Army).

FBCMI_4006_01

SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK:

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL WITH BARE HANDS.
2. IF POSSIBLE, TURN OFF THE ELECTRICAL POWER.
3. IF YOU CAN NOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL.
4. SEND FOR HELP AS SOON AS POSSIBLE.
5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF THE ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START CARDIOPULMONARY RESUSCITATION (CPR).

WARNING

Operators should not perform any unauthorized modifications or maintenance. Maintenance is to be conducted by authorized personnel only. Report damaged equipment to maintenance personnel. Failure to comply may result in injury to personnel and/or equipment damage.

WARNING

The Situational Awareness (SA) data represented on the display is provided for assistance, and may not be in real-time, or completely represent all elements on the field. Displayed icons provide a general idea and location of objects (friendly and enemy). Over-dependence on the accuracy of the SA may cause miscalculations resulting in injury. This should be noted when performing missions. Failure to comply may result in injury to personnel.

WARNING SUMMARY–Continued

WARNING

Sudden vehicle accelerations from operation in rough terrain, sudden stops or vehicle mishap may cause loose or damaged hardware to become a projectile. Ensure system components are properly secured. Internal projectiles could cause serious injury to personnel and can damage or destroy equipment. Failure to comply may result in injury to personnel and/or equipment damage.

WARNING

The internal display inverters operate at high voltages. Electrical shock may occur causing injury to personnel and/or death. Do not disassemble the Display Unit (DU). Failure to comply could result in injury to personnel.

WARNING

Lithium Carbon Monofluoride Complimentary Metal-Oxide Semi-Conductor (CMOS) button-cell internal back-up battery may rupture and cause irritation if leaked electrolytes adhere to eyes and skin. Eyes or skin should be immediately washed with water to remove electrolytes. Dispose of batteries IAW your local servicing Defense Reutilization Material Office (DRMO). Failure to comply could result in injury to personnel.

WARNING

NiMH internal hold-up batteries may rupture and cause irritation if leaked electrolytes adhere to eyes and skin. Eyes or skin should be immediately washed with water to remove electrolytes. Dispose of batteries IAW your local servicing Defense Reutilization Material Office (DRMO). Failure to comply could result in injury to personnel.

WARNING

Backlights in the display may break and leak Mercury and Lead. If Mercury and Lead are exposed, avoid contact with skin, eyes, and clothes, and don't breathe vapors. Immediately contact the proper authorities so that the spillage can be properly removed and if necessary, appropriate medical aid is administered. Dispose of Mercury and Lead IAW your local servicing Defense Reutilization Material Office (DRMO). Failure to comply could result in injury to personnel.

WARNING SUMMARY–Continued

WARNING

Processor Units with internal Light Emitting Diodes (LED) diagnostic displays contain 9-volt non-rechargeable lithium batteries located in battery trays. Batteries may rupture and cause irritation if leaked electrolytes adhere to eyes and skin. Eyes or skin should be immediately washed with water to remove electrolytes. Dispose of batteries IAW your local servicing Defense Reutilization Material Office (DRMO). Failure to comply could result in injury to personnel.

WARNING

If Processor Unit (PU) batteries leak, remove batteries and clean out the battery compartment with a clean water dampened cloth, then dry thoroughly. Dispose of batteries IAW your local servicing Defense Reutilization Material Office (DRMO). Failure to comply could result in injury to personnel.

WARNING

When handling the Removable Hard Disk Drive Cartridge (RHDDC) wait at least 10 seconds after Processor Unit is Powered down, to allow the disk to stop spinning, before removing the RHDDC. The RHDDC can be hot. Burns may result. Allow the RHDDC to adequately cool or use gloves prior to removing from Processor Unit. Failure to comply could result in injury to personnel and or equipment damage.

WARNING

Warning for M93A1 Fox, M113 Mid, M113 A3, FAASV only. Trip Hazard, disconnect the Keyboard Unit (KU) cable when stowed. Failure to comply could result in injury to personnel.

CHANGE NO. 0

HEADQUARTERS, DEPARTMENT OF THE ARMY
WASHINGTON, DC, 28 JUNE 2002

TECHNICAL MANUAL

OPERATOR'S MANUAL FOR FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V) NSN 7010-01-475-5277 AN/UYK-128(V)1 NSN 7010-01-475-5275 AN/UYK-128(V)2 (EIC NA)

TM 11-7010-326-10, 28 June 2002, is updated as follows:

1. Original

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: The portion of text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Dates of issue for original and changed pages / work packages are:

Original ..0 ..28 June 2002

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 27 AND TOTAL NUMBER OF WORK PACKAGES IS 25 CONSISTING OF THE FOLLOWING:

Page / WP No.	*Change No.	Page / WP No.	*Change No.	Page / WP No.	*Change No.	Page / WP No.	*Change No.
WP 0001 00	0						
WP 0002 00	0						
WP 0003 00	0						
WP 0004 00	0						
WP 0005 00	0						
WP 0006 00	0						
WP 0007 00	0						
WP 0008 00	0						
WP 0009 00	0						
WP 0010 00	0						
WP 0011 00	0						
WP 0012 00	0						
WP 0013 00	0						
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WP 0015 00	0						
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WP 0017 00	0						
WP 0018 00	0						
WP 0019 00	0						
WP 0020 00	0						
WP 0021 00	0						
WP 0022 00	0						
WP 0023 00	0						
WP	0						
WP 0025 00	0						

* Zero in this column indicates an original page or work package

TECHNICAL MANUAL

OPERATOR'S MANUAL

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2
(EIC NA)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander: US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LM-LEO-E-ED-P, Fort Monmouth, New Jersey 07703-5000. The fax number is 732-532-1413, DSN 992-1413. You may also e-mail your recommendations to AMSEL-LC-LEO-PUBS-CHG@cecom3.monmouth.army.mil. In either case a reply will be furnished to you.

HEADQUARTERS, DEPARTMENT OF THE ARMY

28 JUNE 2002

TABLE OF CONTENTS

WP Sequence No.

HOW TO USE THIS MANUAL

NOTE

You should read this manual before operating the AN/UYK-128(V) Computer. This manual refers the operator to Unit Maintenance for assistance in resolving problems beyond the user's maintenance responsibilities. This does not circumvent, or replace any existing Army Maintenance Doctrine or the Unit Maintenance Standard Operating Procedure (SOP). The operator must follow established Unit SOP, as applicable. When instructed to notify Unit Maintenance, do exactly as directed. Unit Maintenance personnel have the tools and training to efficiently and correctly solve problems with the computer equipment.

This manual addresses the Force XXI Battle Command Brigade-and-Below (FBCB2) Digital Computer Set, AN/UYK-128(V) at the operator or General Purpose User (GPU) level. This manual provides information on how to operate the AN/UYK-128(V) Computer hardware and use the FBCB2 software applications.

General warnings and cautions are provided at the beginning of this manual. Specific warnings and cautions that apply to particular tasks the operator may need perform, are located at the front of the applicable work package. To ensure against possible injury to personnel and/or equipment damage, follow all the applicable warnings and cautions as listed in this manual.

Familiarize yourself with the Five Steps of Electrical Safety if someone is the victim of electrical shock.

The following describes certain conventions that are used throughout this manual.

Interactive AN/UYK-128(V) Computer hardware buttons and keyboard keys are in **Bold** typeface.
Interactive buttons and tabs (i.e., widget controls) in the FBCB2 software are shown in **Bold** typeface.
Cursors/Pointers are also interactive in the FBCB2 software and are in brackets { }.
Titles of FBCB2 dialog boxes are non-interactive and are in quotation marks " ".
All FBCB2 software dialog boxes, tabs and buttons use the actual item names.

Information on how to operate the AN/UYK-128(V) Computer is presented in chapters and work packages. The Table of Contents at the front provides a listing of topics in each chapter. Each chapter is divided into work packages that cover a particular topic or operating procedures for the AN/UYK-128(V) Computer. The index at the beginning of each chapter provides a listing of work packages in that chapter.

The steps you should follow to find information relating to a specific component or topic are:

1. Determine the specific name or function of the component.
2. Identify the desired topic.
3. Find the general topic in the Table of Contents, or in the Chapter Index.
4. Refer to the appropriate work package identified by the Table of Contents or Chapter Index.
5. WP 0005 00 (Operation Under Usual Conditions) includes a cross-reference table. This table lists several FBCB2 software tasks that the user may need to perform. For each procedure, the work package number is provided for quick and easy reference.

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

GENERAL INFORMATION

SCOPE

This manual contains information to operate the Force XXI Battle Command Brigade-and-Below (FBCB2) AN/UYK-128(V) Computer and the FBCB2 software. The AN/UYK-128(V) Computer is an integral part of the FBCB2 System.

FBCB2 System. The FBCB2 System is an automated, computerized, digitized network, which provides brigade-and-below elements with a seamless battle command capability. The AN/UYK-128(V) Computer, along with associated communication and GPS equipment, allows each platform user in the network to send and receive information across the depth and breadth of the battlefield.

Functionality. The FBCB2 System facilitates the flow of battle command information and supports lower echelon battle command tactical mission requirements. Additionally, it inter-operates with Army and Joint Command and Control (C2) and other sensor systems resulting in the vertical and horizontal information integration of the battlefield. This shared common picture of the battlefield provides the ability to display visually near real-time Situational Awareness (SA) for the commanders, staffs, and soldiers.

Subsystem. Each AN/UYK-128(V) Computer, along with associated communications and Global Positioning System (GPS) equipment, is a subsystem within the FBCB2 architecture. Installed in tactical vehicles, and weapons platforms, each AN/UYK-128(V) Computer is tailored to a specific platform configuration and role or mission. The AN/UYK-128(V) Computer consists of the following: computer hardware, system operating software, FBCB2 software and installation kit hardware. As a role based information system, the AN/UYK-128(V) Computer provides horizontal and vertical information exchanges at all echelons, from platform-to-platform and brigade-to-brigade.

General Information. Figure 1 shows the generic components of the typical AN/UYK-128(V) Computer. The location of these computer components as well as the particular cable configurations will be different for each vehicle. The AN/UYK-128(V) Computer hardware consists of a Processor Unit (PU), a Display Unit (DU), and a Keyboard Unit (KU). The Removable Hard Disk Drive Cartridge (RHDDC) and batteries are located inside the PU. See WP 0002 00 EQUIPMENT DESCRIPTION for more detailed information on the major components including the RHDDC.

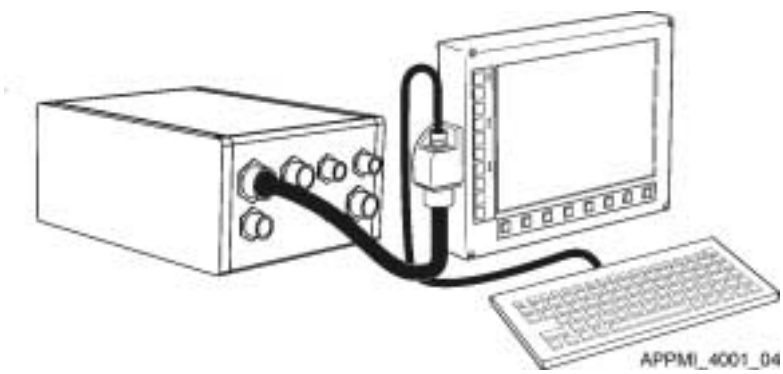


Figure 1 **AN/UYK-128(V) Computer (Typical)**

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS), as contained in the Maintenance Management Update.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on a SF 368 (Product Quality Deficiency Report). Mail to: Commander, US Army Communications-Electronics Command, ATTN: AMSEL-LC-LM-LEO-E-ED-P, Fort Monmouth, NJ 07703-5000. We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

Internal and external equipment is protected in accordance with MIL-F-7179. The Chemical Agent Resistant Coating (CARC) topcoat complies with MIL-C-46168 type IV, color green 383.

OZONE DEPLETING SUBSTANCES (ODS)

Not applicable.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with Technical Manual 750-244-2.

PREPARATION FOR STORAGE OR SHIPMENT

Prior to the storage and shipment of equipment issued to (and used by) Army activities, the equipment shall be checked for condition and completeness. After shipment, the equipment shall be checked for condition, completeness, cleanliness, and operational readiness before storing.

NOMENCLATURE CROSS-REFERENCE

This section provides the common and official designation and the definition of terms used in this manual. See the following table.

Table 1. Nomenclature And Definitions

COMMON NAME	OFFICIAL NOMENCLATURE	DEFINITION OF TERMINOLOGY
FBCB2 System	Force XXI Battle Command Brigade-And-Below (FBCB2).	Consists of the AN/UYK-128(V) Computer, operational software, the Precision Lightweight GPS Receiver (PLGR), the Single Channel Ground and Airborne Radio System Advanced System Improvement Program (SINCGARS ASIP), the Enhanced Position Location Reporting System (EPLRS), and the Internet Controller (INC).
AN/UYK-128(V) Computer	Computer Set, Digital AN/UYK-128(V)	Basic hardware: Processor Unit, Display Unit, Keyboard Unit, and Removable Hard Disk Drive Cartridge, utilizing information-age technology, provides Situational Awareness (SA) and Command and Control (C2) information to all echelon levels and platforms on the battlefield. As such, provides a seamless, holistic Battle Command capability and increased battlefield operational capabilities.
Processor Unit (PU)	Processor Unit (PU).	Performs all the central processing for the AN/UYK-128(V) Computer, and contains an internal power supply which provides all the internal and external voltage requirements.

NOMENCLATURE CROSS-REFERENCE–Continued

Table 1. Nomenclature And Definitions–Continued

COMMON NAME	OFFICIAL NOMENCLATURE	DEFINITION OF TERMINOLOGY
Display Unit (DU)	Display Unit	Provides for the visual display of information to the operator. The DU touchscreen provides the operator with both information and one method of Soldier-Machine Interface (SMI). Power button, control buttons and function buttons provide the soldier with another means of SMI. LED indicators provide operator with visual status of the AN/UYK-128(V) Computer.
Keyboard Unit (KU)	Keyboard Data Entry	Provides two methods of Soldier-Machine Interface (SMI). The first method being the keyboard keys and the second being the mouse-pointing-device.
Removable Hard Disk Drive Cartridge (RHDDC).	Disk Drive Unit	A protective case that contains the Hard Disk Drive, a non-volatile mass storage system, which stores the operating system, the software, and the operator-generated files.
FBCB2 Software	Operating System Software	Provides the basic data processing capability. Consists of UNIX Solaris and Embedded Battle Command (EBC) Software. Provides the graphic displays, the operations and the interface that allows the operator to perform his/her mission.
Installation Kit	Installation Equipment, Data Processing.	Contains the associated cables and mounting hardware needed to install the AN/UYK-128(V) Computer into specific platforms.
Stylus	Computer Unit Pen	A non-metallic pen that facilitates precise pointing device functionality with the Soldier-Machine Interface (SMI) of the touchscreen. The stylus must be used when calibrating the touchscreen. The stylus is especially helpful with the SMI when the operator is required to wear Mission-Oriented Protective Posture (MOPP) gloves.
Isolation Kit Assembly	Plate, Resilient Mount	Provides shock isolation between the Processor Unit (PU) and vehicle chassis. A second isolation kit provides shock isolation between the Display Unit (DU) and the vehicle chassis.
Precision Lightweight GPS Receiver (PLGR)	Satellite Signals Navigation Set AN/PSN-11	Provides a self-contained receiver of Global Positioning System (GPS) satellite signal, allowing the FBCB2 user to derive position, velocity and time information.
Single Channel Ground and Airborne Radio System (SINCGARS)	Single Channel Ground and Airborne Radio System (SINCGARS) Advanced System Improvement Program (ASIP)	Provides connectivity to the AM-7239/VRC Vehicular Amplifier Adapter (VAA) via the SINCGARS ASIP Receiver/Transmitter (R/T). This connection establishes the interface to the INC, EPLRS and AN/UYK-128(V) Computer.
Enhanced Position Location Reporting System (EPLRS)	Enhanced Position Location Reporting System (EPLRS)	Provides a system of frequency hop, Time Division Multiple Access (TDMA) radios designed for data communication and position location. EPLRS Very High-Speed Integrated Circuit (VHSIC) radios provide high throughput for host to host digital data communications.

NOMENCLATURE CROSS-REFERENCE–Continued

Table 1. Nomenclature And Definitions–Continued

COMMON NAME	OFFICIAL NOMENCLATURE	DEFINITION OF TERMINOLOGY
Internet Controller (INC)	Comm Router	Provides an Internet Protocol (IP) router that extends the packet data communication capability to the Combat Net Radio (CNR) users. The INC is housed in the SINCGARS Vehicular Amplifier Adapter (VAA).
MILSATCOM	Military Satellite Communication	Provides line-of-sight and tactical satellite communications that will serve as a primary command-and-control single-channel radio for Army MAGTFs and their elements.

LIST OF ABBREVIATIONS / ACRONYMS

The list of abbreviations/acronyms is only for this manual and is not necessarily approved by the United States Army. See the following table.

Table 2. Acronyms List

ACRONYM	DESCRIPTION
ABCS	Army Battle Command System
BCOPS	Battle Command Operations
BOS	Battlefield Operating Systems
CADRG	Compressed Arc Digitized Raster Graphics
CB	Circuit Breaker
CFF	Call For Fire
CFS	Call For Support
CMOS	Complementary Metal Oxide Semiconductor
CNR	Combat Net Radio
CPU	Processor Unit
DISP	Display
DMS	Degrees/Minutes/Seconds
DTD/MDL	Data Transfer Device/Mission Data Load(er)
DTED	Digital Terrain Elevation Data
DTG	Date/Time Group
DU	Display Unit
EBC	Embedded Battle Command
EIAD	Expansion Interface Adapter Device

LIST OF ABBREVIATIONS / ACRONYMS–Continued

Table 2. Acronyms List–Continued

ACRONYM	DESCRIPTION
EOM	End Of Mission
EPLRS	Enhanced Position Location Reporting System
EPM	External Power Module
ESD	Electrostatic Discharge
ESDS	Electrostatic Discharge Sensitive
FBCB2	Force XXI Battle Command Brigade-and-Below
FCN	Function
FCR	Fire Control Radar
FCTN	Function
FEC	Forward Error Correction
FIPR	Flash, Immediate, Priority, Routine
FOV	Field-Of-View
FTM	Frequency/Time Matrix
GEOREF	Geographic Reference
GFCI	Ground Fault Circuit Interrupter
HDD	Hard Disk Drive
IP	Internet Protocol
KU	Keyboard Unit
LAN	Local Area Network
LRAS3	Long Range Advanced Scout Surveillance System
LRU	Line Replaceable Unit
LTI	Lower Tactical Internet
LTO	Logistics Task Order
MILSATCOM	Military Satellite Communication
MTO	Message To Observer

LIST OF ABBREVIATIONS / ACRONYMS–Continued

Table 2. Acronyms List–Continued

ACRONYM	DESCRIPTION
NAC	Net Access Control
NiMH	Nickel Metal Hydride
OA	Operator Acknowledge
OR	Operator Response
POST	Power-On Self Test
PWR	Power
PU	Processor Unit
RHDDC	Removable Hard Disk Drive Cartridge
SIAD	Serial Interface Adapter Device
SICPS	Standardized Integrated Command Post Shelter
STBY	Standby
SUM	Software User’s Manual
TI	Tactical Internet
USB	Universal Serial Bus
UTM	Universal Transverse Mercator
UTO	Unit Task Organization
UTR	Unit Task Reorganization
VHSIC	Very High-Speed Integrated Circuit
VMF	Variable Message Format
VPF	Vector Product Format

QUALITY ASSURANCE (QA)

Refer to the latest issue of DA Pam 25-30 to determine whether there are new editions, changes or additional publications pertaining to the equipment.

SECURITY MEASURES FOR ELECTRONIC DATA

When the Removable Hard Disk Drive Cartridge (RHDDC) is installed in the Processor Unit (PU) or removed from the system (for maintenance, troubleshooting, or any other reason), proper safeguards must be taken to avoid compromise of classified material. The RHDDC is considered classified, regardless of the level of access for the role of the user. The RHDDC must

SECURITY MEAURES FOR ELECTRONIC DATA–Continued

be handled as classified media and maintained in accordance with AR 380-19. Containers that are in accordance with the requirements of AR 380-5 should be used for movement and storage of the removable media that may contain classified information.

The RHDDC must be marked in accordance with AR 380-5. The RHDDC remains a classified media until properly purged or destroyed in accordance with the procedures outlined in AR 380-5.

Hardware security is aided by padlocks for the Processor Unit (PU) Removable Hard Disk Drive Cartridge (RHDDC), Display Unit, and Keyboard stowage box.

END OF WORK PACKAGE

CHAPTER 1

OPERATOR MAINTENANCE

INTRODUCTORY INFORMATION WITH THEORY OF OPERATION

FOR

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2)

CHAPTER 1

OPERATOR MAINTENANCE
INTRODUCTORY INFORMATION WITH THEORY OF OPERATION

WORK PACKAGE INDEX

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

EQUIPMENT DESCRIPTION

This work package provides a detailed description of the AN/UYK-128(V) Computer. Environmental and physical constraints of the equipment are shown. The FBCB2 System consists of three components. These are the AN/UYK-128(V) Computer, the software, and the peripheral equipment.

AN/UYK-128(V) Computer. The AN/UYK-128(V) Computer has two different configurations of Processor Units (PUs), Display Units (DUs), Keyboard Units (KUs), and Removable Hard Disk Drive Cartridges (RHDDCs). The PUs, DUs, and KUs are interchangeable between the two different computer configurations. However, the two different types of RHDDCs (both located inside the PU) are not interchangeable with each other. The installation kits used with the AN/UYK-128(V) Computer are unique to each platform type.

Software. The software used for the system consists of FBCB2 software, operating system software and Embedded Battle Command (EBC) software running in the background. See WP 0002 00 SOFTWARE.

Interface Equipment. A crucial component of the FBCB2 System is the peripheral equipment. This consists of the Single Channel Ground and Airborne Radio System (SINCGARS) Advanced System Improvement Program (ASIP) if installed, Enhanced Position Location Reporting System (EPLRS) if installed, the Precision Lightweight Global Positioning System (GPS) Receiver (PLGR), MILSATCOM if installed and the Internet Controller (INC). See WP 0005 00 PERIPHERAL EQUIPMENT SET UP.

NOTE

If all peripheral equipment is not initialized in the proper sequence before powering up the AN/UYK-128(V) Computer, performance of the system will be degraded. Refer to Operating Procedure WP 0005 00 STARTUP/SHUT DOWN.

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS

The following paragraphs and accompanying figures describe the major components of the AN/UYK-128(V) Computer's two different configurations. These components are mounted into the various platforms using their corresponding installation and isolation kits.

PROCESSOR UNIT (PU)

The two interchangeable PUs, Figure 1 and Figure 2 , feature a microprocessor and support chip-set compatible with the Intel Pentium instruction set architecture. Processing performance of the Pentium II processor is 333 megahertz (or better), with 192-megabytes dynamic random access memory, and a 6-gigabyte minimum capacity Hard Disk Drive. Additionally, the PU has a cache memory of 256-kilobytes (minimum) of Random Access Memory (RAM).

Each configuration of PU inter-operates with its own unique Removable Hard Disk Drive Cartridge (RHDDC) See WP 0002 00 REMOVABLE HARD DISK DRIVE CARTRIDGE (RHDDC). These RHDDCs are not interchangeable between the two Processor Units. The RHDDC is located behind an access panel within the PU. This panel is secured with captive fasteners and gaskets, which maintain the watertight integrity of the PU case.

Also located behind the access panel is a battery compartment which holds the backup batteries. A rechargeable, Nickel Metal Hydride (NiMH) battery(s) provides internal power holdup during low voltage conditions to allow proper shut down of the AN/UYK-128(V) Computer. The PU can recharge these internal power hold-up batteries while the PU is operating. The internal power hold-up batteries are located in the PU battery box or battery tray (depending on PU version). The battery tray/battery box

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS–Continued

PROCESSOR UNIT (PU)–Continued

contains a voltage/state-of-charge indicator which can be used to determine the state of charge of the batteries without requiring that external power be applied to the PU to use the indicator.

The circuit breaker/switch acts as a power "ON/OFF" switch. See WP 0004 00 PROCESSOR UNIT (PU). The switch must be turned to the "OFF" position when the AN/UYK-128(V) Computer is not in use. It is also important to turn the circuit breaker/switch to the "OFF" position to prevent vehicle batteries from being drained by the hold-up batteries. The circuit breaker/switch will trip to the "OFF" position if an over-voltage or over-current condition exists.

A lock and key is provided to secure the Processor Unit (PU) in the vehicle. The key is the responsibility of the vehicle operator. The lock is primarily to prevent the Removable Hard Disk Drive Cartridge (RHDDC) from being removed by unauthorized personnel. The PU may be secured with a steel cable to prevent possible theft.

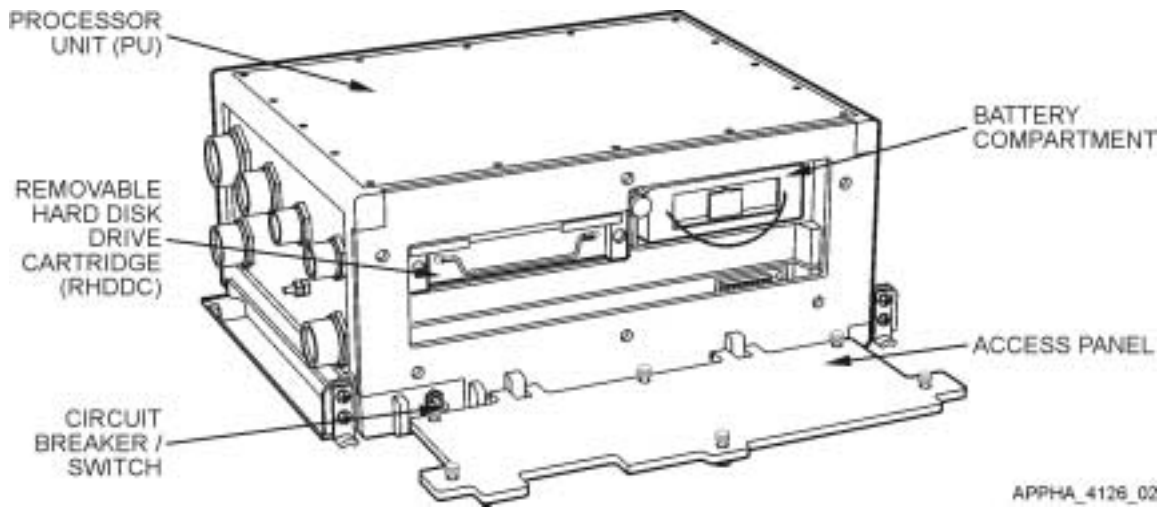


Figure 1 **Processor Unit (NSN 7021-01-475-0217/NSN 7021-01-487-0579/NSN 7021-01-496-2126)**

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS–Continued

PROCESSOR UNIT (PU)–Continued

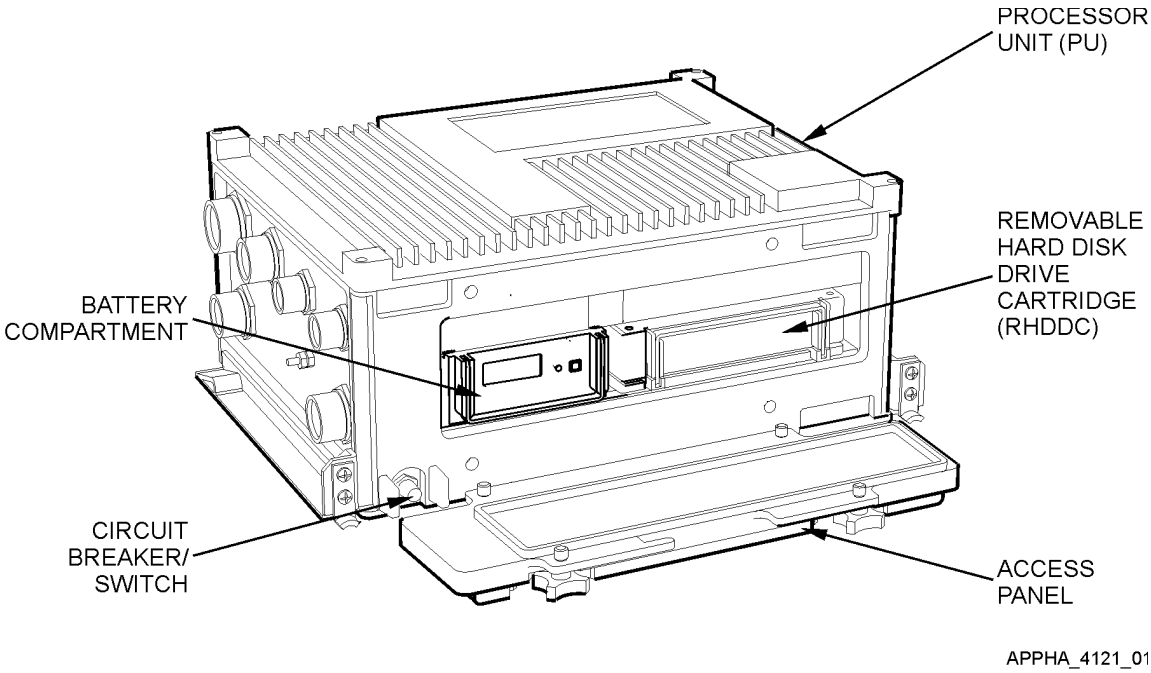


Figure 2 **Processor Unit (NSN 7021-01-474-3793/NSN 7021-01-487-0578/NSN 7021-01-496-4263)**

DISPLAY UNIT (DU)

The three interchangeable DUs, Figure 3 , Figure 4 and Figure 5 incorporate a flat-panel active matrix color liquid crystal display screen capable of displaying 256 colors. The screen is sunlight-readable and incorporates a glare-reducing finish that acts as a filter for ease of viewing at normal room brightness. The DUs have a resolution of 800 x 600-pixels, are high brightness, and have a wide aperture screen.

Incorporated into all display screens is a pressure-sensitive Touchscreen overlay functioning as a Soldier-Machine-Interface pointing device that can be touch-activated by a non-metallic stylus.

The Controls and Indicators panel function buttons control the DU and PU functions, as well as displaying the status of the DU and PU. Refer to WP 0004 00 (Control and Indicators) for a description of the controls and indicators on the units.

Display Unit (DU) Security. For platform configurations requiring additional security measures, there is a lock and key for the Display Unit (DU). The vehicle operator has control of the key. The lock with a steel cable secures the DU to the mount assembly to prevent possible theft.

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS–Continued

DISPLAY UNIT (DU)–Continued

Display Unit (10-inch). The 10-inch Display Unit (DU), shown in Figure 3 , has 8 hard-button function keys (8-Button Bezel Keypad) at the bottom of the screen. Refer to WP 0004 00 DISPLAY UNIT (DU) for the 8-Button Bezel Keypad description.

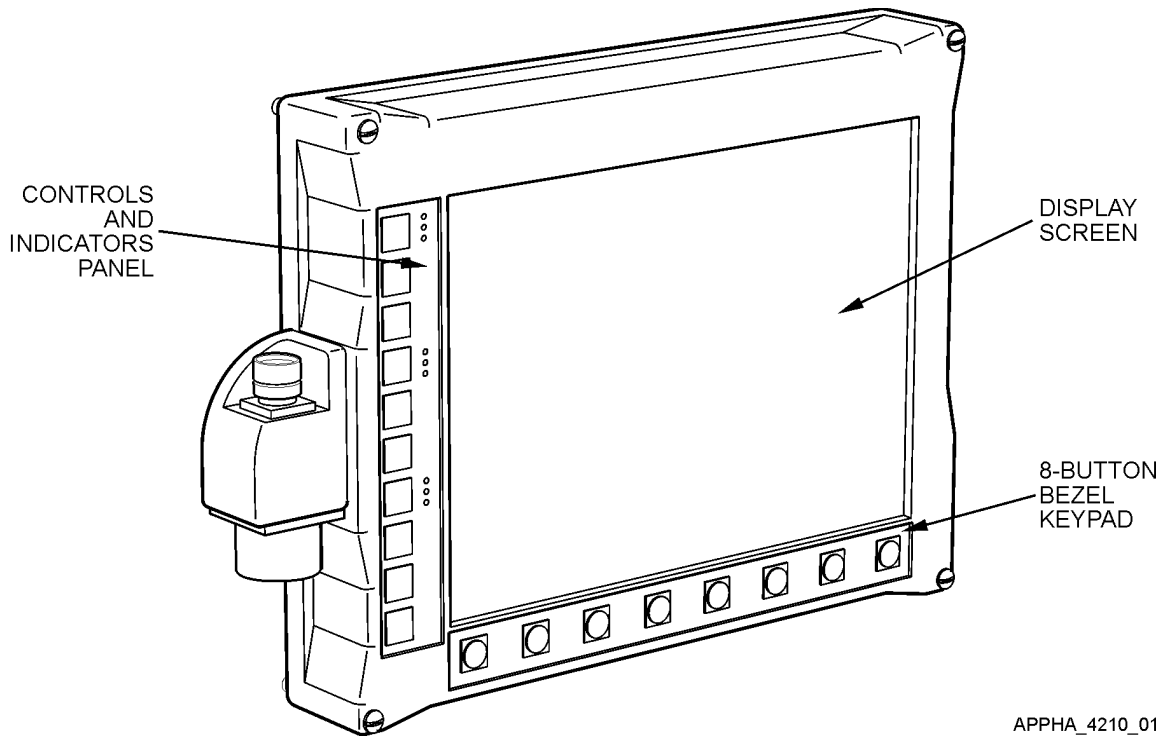


Figure 3 **Display Unit (10-Inch) (NSN 7025-01-475-0229)**

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS–Continued

DISPLAY UNIT (DU)–Continued

Display Unit (12-Inch In 10-Inch Frame). The 10/12 inch Display Unit (DU) configuration, shown in Figure 4 , has a 12-inch screen mounted in a 10-inch frame and also has the 8-Button Bezel Keypad below the screen. Refer to WP 0004 00 DISPLAY UNIT (DU) for the 8-Button Bezel Keypad description.

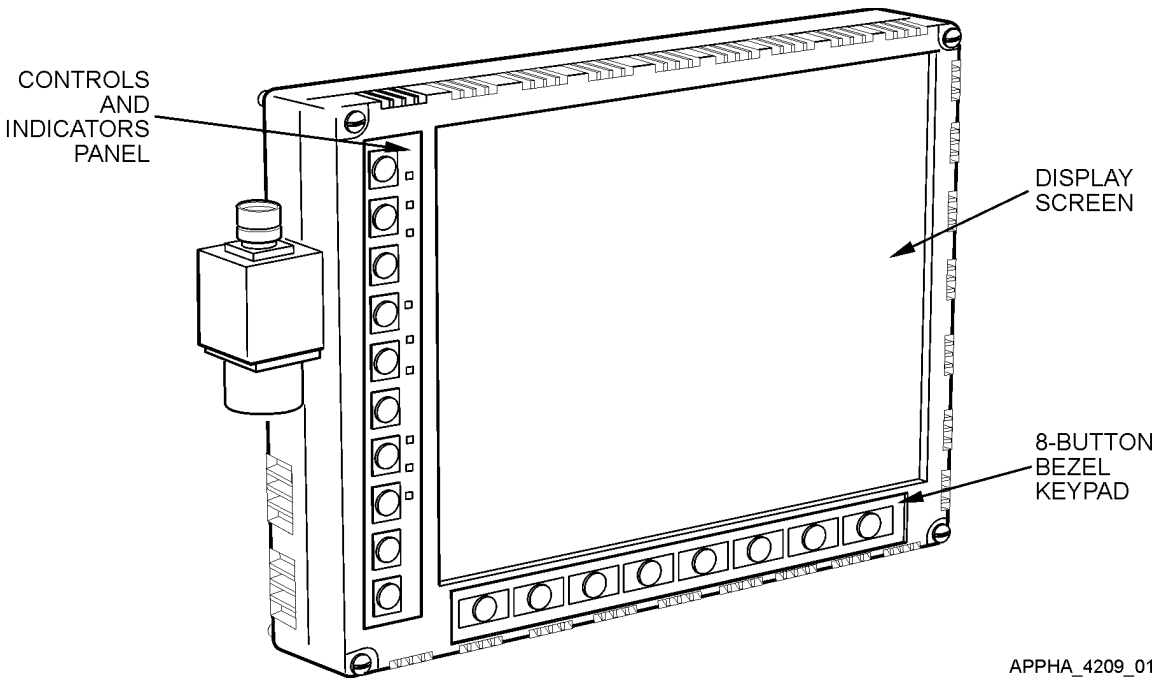


Figure 4 **Display Unit (12-Inch In 10-Inch Frame) (NSN 7025-01-475-0280)**

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS–Continued

DISPLAY UNIT (DU)–Continued

Display Unit (12-Inch). The other type of Display Unit (DU) with the 12-inch screen, see Figure 5 , has no 8-Button Bezel Keypad.

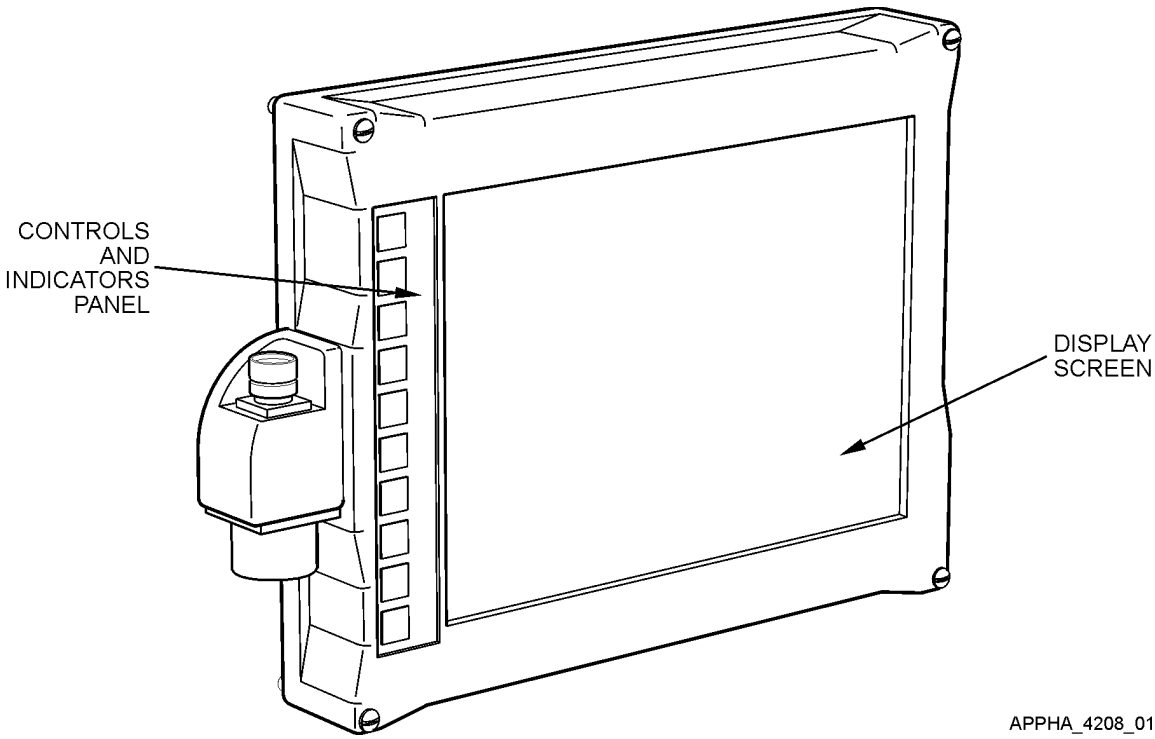


Figure 5 **Display Unit (12-Inch) (NSN 7025-01-475-0282)**

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS–Continued

KEYBOARD UNIT (KU)

The Keyboard Unit (KU) is a sealed, membrane-type design that minimizes the effects of tactical environments, including sand and dust, on its operation. There are two different configurations of KU for use with the AN/UYK-128(V) Computer. See Figure 6 and Figure 7 . Although the mouse pointers (i.e., embedded pointing devices) are in different locations on the keypad, both KUs provide the same functionality and are fully interchangeable with each other. The KU interfaces to the Processor Unit (PU) via a cable connected to the Display Unit (DU).

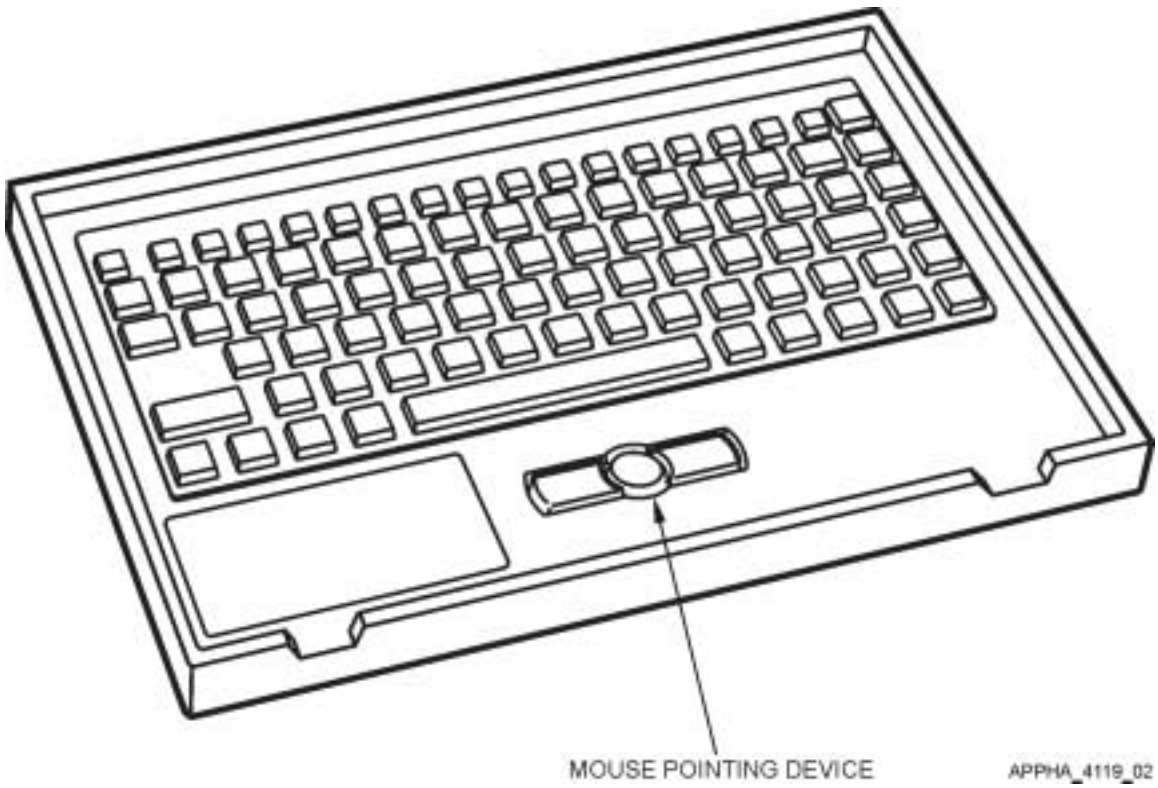


Figure 6 **Keyboard Unit (NSN 7025-01-474-3791/NSN 7025-01-487-0581)**

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS–Continued

KEYBOARD UNIT (KU)–Continued

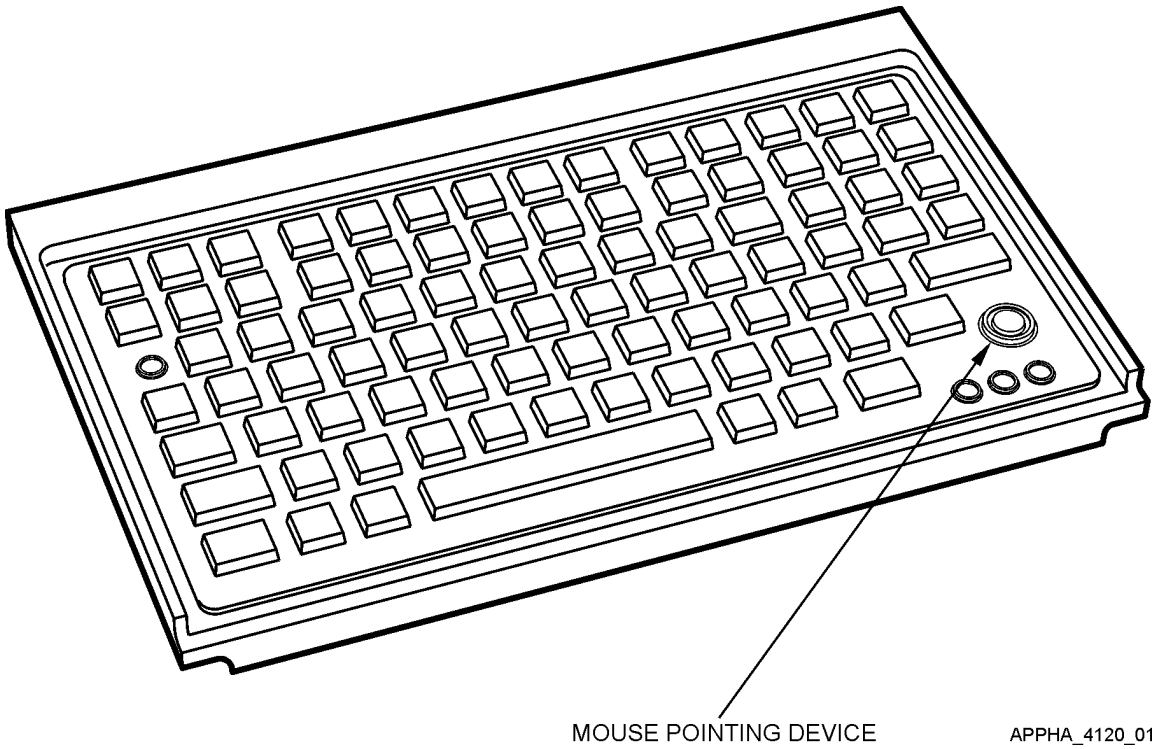


Figure 7 **Keyboard Unit (NSN 7025-01-474-3792/NSN 7025-01-496-9879)**

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS–Continued

REMOVABLE HARD DISK DRIVE CARTRIDGE (RHDDC)

The two RHDDC configurations are not interchangeable. Each Processor Unit (PU) configuration has its own unique RHDDC. See Figure 8 and Figure 9 . The RHDDC incorporates a non-volatile mass storage device, which inter-operates with its PU. The Hard Disk Drive (HDD) itself has a minimum storage capacity of 6-gigabytes. The HDD is in a protective case, which provides the interface to the PU. The case has a wire lanyard or handle that allows removal of the HDD from the PU. RHDDCs are removable from the PU by hand (i.e., without the use of tools). Refer to WP 0022 00 (Components of End Item (COEI) and Basic Issue Items (BII) Lists) to identify the RHDDC and PU compatibility.

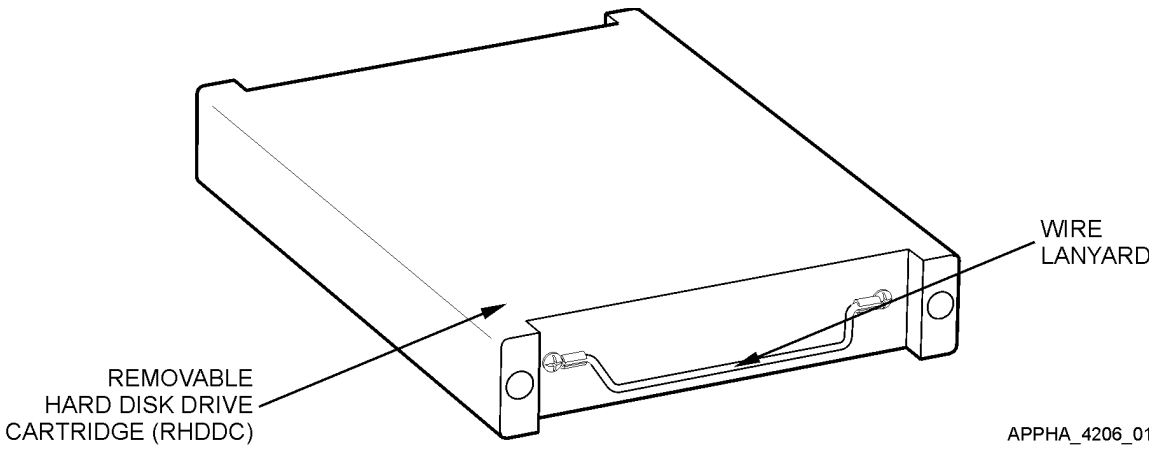


Figure 8 **Removable Hard Disk Drive Cartridge (NSN 7025-01-474-5753)**

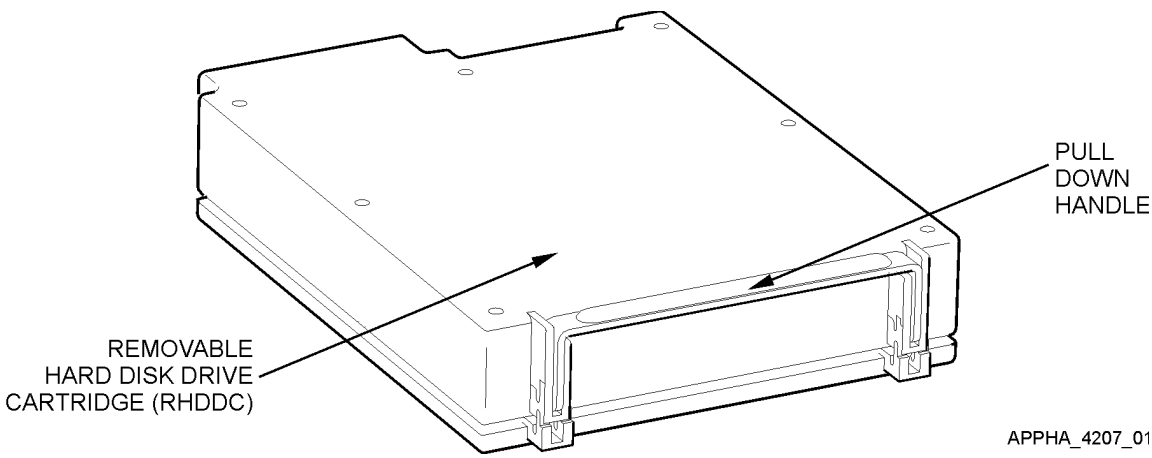


Figure 9 **Removable Hard Disk Drive Cartridge (NSN 7025-01-474-3789/NSN 7025-01-487-0580)**

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS–Continued

SOFTWARE

Operating System Software. The installed Operating System software supports the FBCB2 software. This provides the AN/UYK-128(V) Computer with the data processing functionality for executing all FBCB2 applications.

EBC Software. The Embedded Battle Command (EBC) function is common to this and other FBCB2 applications. EBC interfaces with other EBC-equipped units via the communications subsystem and to the individual operator via graphics interface.

FBCB2 Software. The installed FBCB2 software provides the means of accomplishing an operational mission. Capabilities include display of maps, filtering capability, ability to send, store, edit and manage messages and overlays. The software allows the user to communicate efficiently, up or down the chain of command, based on his/her role. Various reports exist that allow for mission reports, orders/requests and fires/alerts. WP 0004 00 (Control and Indicators) discusses the FBCB2 software functionality in greater detail. More software details can also be found in the embedded Software User's Manual (SUM).

EQUIPMENT DATA

The following table provides the AN/UYK-128(V) Computer component dimensions and weight.

Table 1. AN/UYK-128(V) Computer Component Information

COMPONENT	DIMENSIONS (H x W x D in inches)	WEIGHT (in pounds)
Processor Unit NSN 7021-01-475-0217/ NSN 7021-01-487-0579/ NSN 7021-01-496-2126	5.12"H x 12.5"W x 10.25"D	18.60 (with RHDDC installed)
Processor Unit NSN 7021-01-474-3793/ NSN 7021-01-487-0578/ NSN 7021-01-496-4263	5.13"H x 12.17"W x 10.26"D	16.50 (with RHDDC installed)
Display Unit (10-inch) NSN 7025-01-475-0229	9.5"H x 13.06"W x 2.03D	9.00
Display Unit (10/12-inch) NSN 7025-01-475-0280	9.03"H x 13.5"W x 2.3"D	7.00
Display Unit (12-inch) NSN 7025-01-475-0282	10.6"H x 14.08"W x 2.2"D	10.70
Keyboard Unit NSN 7025-01-474-3791/ NSN 7025-01-487-0581	1.07"H x 11.5"W x 7.25"D	2.00
Keyboard Unit NSN 7025-01-474-3792/ NSN 7025-01-496-9879	1.06"H x 11.5"W x 7.26"D	2.00
Removable Hard Disk Drive Cartridge NSN 7025-01-474-5753	0.79"H x 5.12"W x 5.57"D	0.85
Removable Hard Disk Drive Cartridge NSN 7025-01-474-3789/ NSN 7025-01-487-0580	0.79"H x 5.77"W x 7.97"D	1.00

EQUIPMENT DATA–Continued

Equipment Specification. The environmental specifications for the AN/UYK-128(V) Computer hardware are shown in the following table.

Table 2. AN/UYK-128(V) Computer Environmental Specifications

CONDITION	SPECIFICATIONS
Operating Temperature	-25° Fahrenheit (F) to + 140° F -32° Celsius (C) to + 60° C
Storage Temperature	-30° F to + 160° F, -34° C to + 71° C
Shock	Ballistic Shock 50 grams - 10 millisecond (Track/Wheeled vehicles and helicopters)
Water Tightness	Stream of Water at 50 pounds-force per square inch for 40 minutes
Altitude	15000 feet operating
Relative Humidity	3% - 100%
Sand and Dust	20 ± 3 miles per hour for 30 minutes
Explosive Atmosphere	Designed not to cause ignition of any ambient explosive gaseous mixture when operating in such an atmosphere
Salt Fog Atmosphere	Resists the effects of a salt fog atmosphere

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

THEORY OF OPERATION

THEORY OF OPERATION

This work package provides a simplified overview of the FBCB2 System. FBCB2 is a digital, battle command information system that provides on-the-move, real-time command and control information to tactical combat arms, combat support and combat service support soldiers and leaders. FBCB2 supports situational awareness down to the soldier/platform level. FBCB2 consists of:

1. Software for embedded Tactical Operation Centers (TOCs).
2. Hardware and software for non-embedded air and ground platforms.
3. Army Battle Command System (ABCS) Interfaces/Integration.
4. Supporting communication systems (SINCGARS, EPLRS, MILSATCOM).

System Description. FBCB2 is a battle command information system designed for units performing missions at the tactical level. FBCB2 integrates with each of the Battlefield Operating Systems (BOS) providing seamless battle command capability with increased battlefield operational capabilities. FBCB2 provides command control capabilities relevant to each of the battlefield functional areas, increasing the effectiveness of their operational capabilities.

FBCB2 displays the relevant Situational Awareness (SA) environment. SA shows the user his location, the location of other friendly forces, observed enemy locations and all known battlefield obstacles. The warfighter receives data "pushed" from all the battlefield systems to maintain real-time battle information.

FBCB2 receives data across the Tactical Internet via the Internet Controller (INC). The INC is a tactical router built into the SINCGARS radio system. The Enhanced Position Location Reporting System (EPLRS) data radio and Single Channel Ground and Airborne Radio System (SINCGARS) data/voice radio both transmit/receive digital information between vehicles. Each FBCB2 System derives its own location via the Precision Lightweight GPS Receiver (PLGR). Utilizing these interfaces, the FBCB2 System automatically updates and broadcasts its current location to all other FBCB2 and Embedded Battle Command (EBC) platforms. EBC is a separate software package that enables FBCB2 platforms to share SA and Command and Control (C2) with battalion and brigade TOCs.

Digital systems on the battlefield pass messages using the Joint Variable Message Format (JVMF). JVMF is a Department of Defense standardized message format. It prescribes uniform message formats for all branches of the armed services.

SINCGARS ASIP. The Single Channel Ground and Airborne Radio System (SINCGARS) Advanced System Improvement Program (ASIP) Radio provides several features designed to facilitate efficient and effective communications in the battlefield. Programmable slots accommodate data or shared voice/data nets with precedence slotting. Forward Error Correction (FEC) and Net Access Control (NAC) are performed by the radio.

INC. The Internet Controller (INC) is an Internet Protocol (IP) router that extends the packet data communication capability to the Combat Net Radio (CNR) users. The INC is housed in the SINCGARS Vehicular Amplifier Adapter (VAA) and includes a maximum of four interfaces. The four interfaces may be used in various ways but the most common FBCB2 method is to have two SINCGARS ASIP Receiver/Transmitter (R/T) radios and a host. The INC is separately qualified and is furnished to FBCB2 as Government Furnished Equipment (GFE).

EPLRS. Enhanced Position Location Reporting System (EPLRS) Very High-Speed Integrated Circuit (VHSIC) radios provide high throughput for host-to-host digital data communications. EPLRS is a system of frequency hop, Time Division Multiple Access (TDMA) radios designed for data communication and position location. EPLRS communicates with its host using the Army Data Distribution System Interface (ADDSI).

PLGR. The Precision Lightweight Global Position System Receiver (PLGR) is a device that provides time and military precision location data to the target computers via RS-232/RS-422 interfaces.

THEORY OF OPERATION–Continued

MILSATCOM. The Military Satellite Communication utilizes the SPITFIRE AN/PSC-5 radio set. SPITFIRE provides DAMA and Narrowband Secure Voice capability and is used to transmit intelligence traffic, interface with SINCGARS waveforms, and transmit/receive command-and-control traffic.

Embedded Battle Command (EBC). EBC is found in battalion and brigade Tactical Operations Centers (TOCs). It is a separate software package that allows platforms to share SA and C2 with FBCB2-equipped platforms. EBC capabilities are the following:

1. SA Processing
2. Tactical Internet (TI) Connectivity and Management
3. JVMF message processing
4. C2 Data Management
5. Security

EBC provides Tactical Internet (TI) connectivity and communications services. It configures, controls, and employs the INC to send and receive digital information across EPLRS and SINCGARS-ASIP radios. SA handling in EBC is different from FBCB2. EBC receives blue SA via the TOC Server and forwards it to other brigades. EBC receives the correlated red picture (i.e., enemy situation) from the All Source Analysis System (ASAS) and forwards it to FBCB2.

Role-Based Functionality. Different levels of leadership require different demands from FBCB2, i.e., some positions require more C2 capability than others. FBCB2 is designed to provide functionality based upon its configured platform role. Roles are configured into one of the following four categories for functionality:

1. Platform/Wingman/Squad Leader
2. Platoon leadership
3. Company/Battery/Troop leadership
4. Battalion/Squadron/Brigade/Regiment leadership/Staff

Some players do not fit into these roles. These unique players possess the highest level of functionality. This enables them to perform critical functions, such as network-wide deletions of spot reports, normally reserved for a staff level role. The following list are the current roles that do not fit into the typical groupings:

1. Strikers
2. Scouts
3. Task Force and Brigade Cavalry Troop
4. Company TOCs
5. Military Police Platoons

System Security. Security architecture is developed for all ABCS systems. These security technology measures consist of firewalls, intrusion detection systems, and in-line network encryptors and host security. FBCB2 users are required to enter a password at the Session Manager Screen login box before the Battle Command Operations (BCOPs) map screen will appear.

FBCB2 also has a "self destruct" button under the SysAdmin screen. This should only be selected in a real world combat scenario when there is a possibility the enemy will gain access to the computer. If the FBCB2 Self-Destruct button is selected, all the information on the Removable Hard Disk Drive Cartridge will be deleted. The Removable Hard Disk Drive Cartridge will have to be reloaded in order for it to be operational. More stringent security measures are authentication requirements, message classification, and role-based access according to material classification and the user's (or the Security Officer's) ability to disable the system.

Situational Awareness. Situational Awareness (SA) is a collection of data referenced to a geographical location. The primary features of the SA picture are the friendly (blue) forces, enemy (red) forces, terrain, obstacles and civilian activities of military concern. What the user actually sees depends on how the user sets up the system. The SA picture is established through the use of the situational awareness settings tab group in the Admin function and the Filters Dialog Window. The SA settings tell the system how often to update the network with the platform's position. They also dictate how long both blue and red icons stay visible. The filters dialog box allows users to set which icons (i.e., unit type and echelon), overlays, labels and geo-referenced graphics are displayed as part of the overall SA picture. Filter settings are a tool used to reduce screen clutter and simplify C2. What the user sees on the FBCB2 screen is a function of both types of filter settings. Standard filter settings are essential in order for the Brigade to achieve a common tactical picture. Standardized settings also reduce the load on the Tactical Internet (TI) resulting in faster data transfer.

END OF WORK PACKAGE

CHAPTER 2

OPERATOR

OPERATOR INSTRUCTIONS

FOR

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2)

CHAPTER 2

OPERATOR MAINTENANCE
OPERATOR INSTRUCTIONS

WORK PACKAGE INDEX

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

CONTROL AND INDICATORS

CONTROL AND INDICATORS

This work package describes the functional controls and indicators of the AN/UYK-128(V) Computer, including the DU 8-Button Bezel Keypad, DU Controls and Indicaorts Panel, and the special keys on the Keyboard Unit (KU). The circuit breaker/toggle switch is also covered.

DISPLAY UNIT (DU)

The Control and Indicators Panel is the same for the three types of Display Units (DU). The following figure is typical of the two display units that have the 8-Button Bezel Keypad added along the lower portion of the DU face. With all DU labeling configurations, the functionality of the 8-Button Bezel Keypad remains the same. The controls and indicators panel for all screen types is located on the front and to the left of the Liquid Crystal Display (LCD) on the DU. This panel has two areas, the Controls area that controls functions for the Processor Unit (PU) and Display Unit (DU), and the Indicators area that displays information on PU and DU operations via LCD lights. The Controls area is located on the left side of the panel, while the Indicators area is located on the right side of the panel.

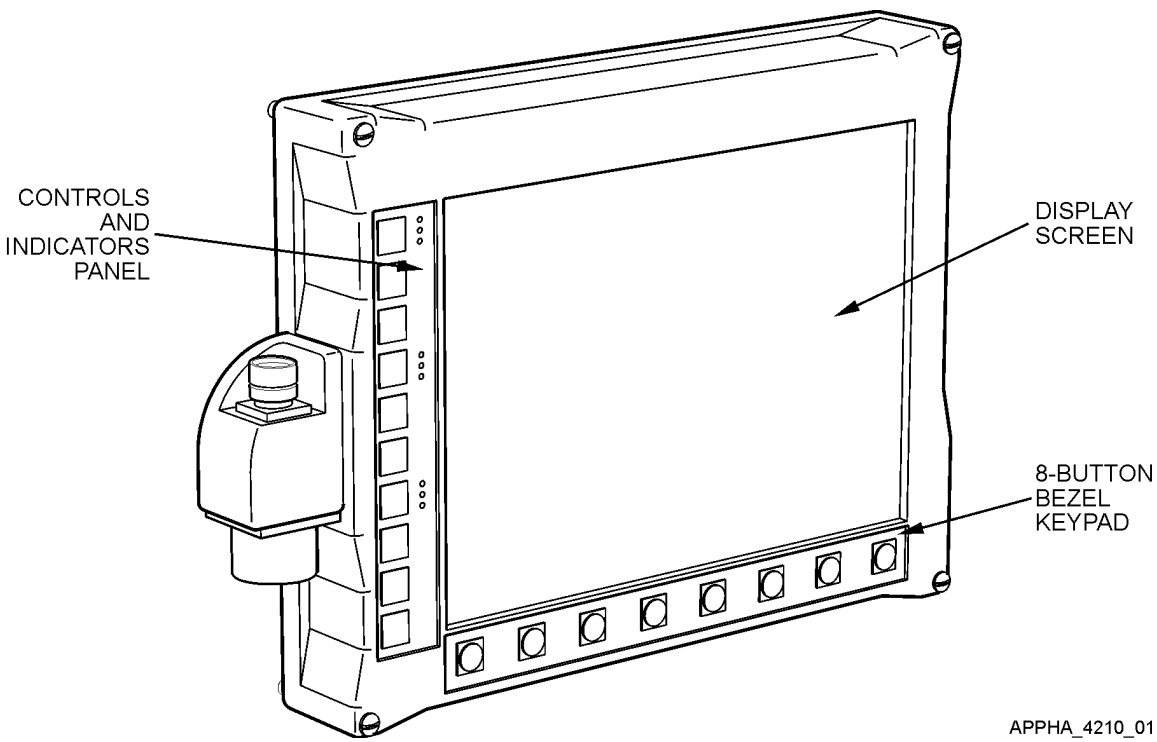


Figure 1. **Display Unit (DU) Typical**

DISPLAY UNIT (DU)–Continued

Controls Section. The following figure illustrates the Control functions by name. The top label on the button (i.e., first listing) indicates the primary function of that button. The bottom label on a button (i.e., second listing) indicates a secondary function. To use a primary function, simply press that button. To use a secondary function, hold down the **FCN** (i.e., function) button and press the secondary button function desired.

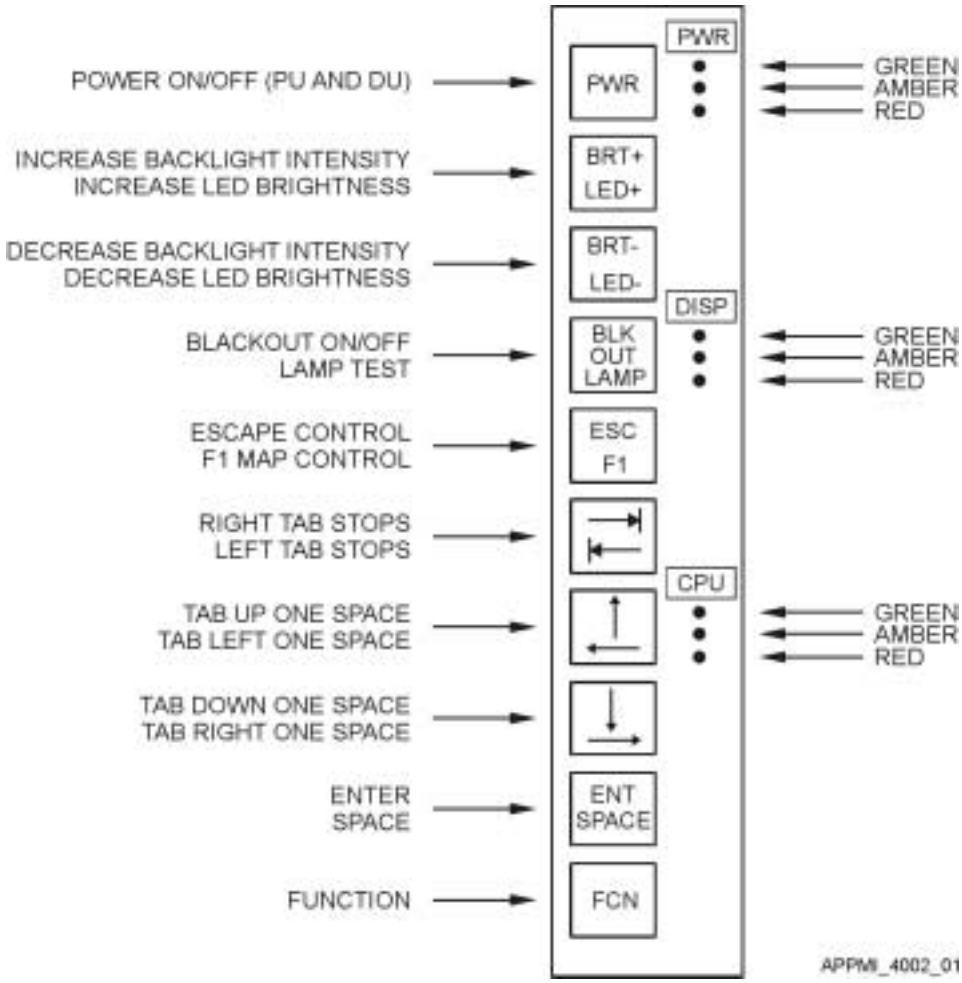


Figure 2. **DU Controls And Indicators Panel**

DISPLAY UNIT (DU)–Continued

Indicators Section. There are three categories for the Indicators section on the Display Unit (DU). The Light Emitting Diode (LED) indicators for the **PWR** (Power), **DISP** (Display), and **CPU** (Processor Unit) are located down the right hand edge of the Controls and Indicators Panel. The indicators use color illumination (i.e., green, amber, and red) to give system status for each of the categories. The brightness of these indicator groups is adjustable from full bright to full dark using the **FCN** (Function) button and **LED+** or **LED-** button at the same time. The following table lists the individual LEDs by what it indicates within each category.

Table 1. DU Indicator Information

CHARACTERISTIC	EQUIPMENT STATUS
Power (PWR)	
Green	Power ON, no problems detected.
Blinking Green	Heater ON.
Amber	Power supply output voltage out of acceptable range (PU power).
Blinking Amber	Undefined.
Red	Loss of vehicle power, running on internal battery. Display Unit will operate at reduced brightness.
Blinking Red	Input power out of acceptable range (Vehicle power).
Display Unit (DISP)	
Green	Display Unit OK.
Blinking Green	Heater ON.
Amber	Overheat, operating at reduced brightness.
Blinking Amber	Communication error (Problem at the Display Unit).
Red	Overheat, Display Unit shut down or failure.
Blinking Red	Built In Test (BIT) failure detected.
Processor Unit (CPU)	
Green	Processor Unit OK.
Blinking Green	Heater ON.
Amber	Degraded Processor Unit operation - Temperature Warning.
Blinking Amber	Communication error (No message from Processor Unit).
Red	Processor Unit shut down or failure.
Blinking Red	Power-On Self Test (POST) problem.

DISPLAY UNIT (DU)–Continued

Display Unit 8-Button Bezel Keypad. The following figure illustrates the 8-Button Bezel Keypad located at the bottom of the Display Unit (DU) case. The 8-Button Bezel Keypad is only found on the two 10-inch DUs. See Table 2. for earlier DU keypad nomenclature. In all cases, the functionality of the 8-Button Bezel Keypad remains the same. This keypad allows the operator to access the "Combat Messages" dialog box. The FBCB2 software must be in the Ops Main Screen before these function buttons can be used.

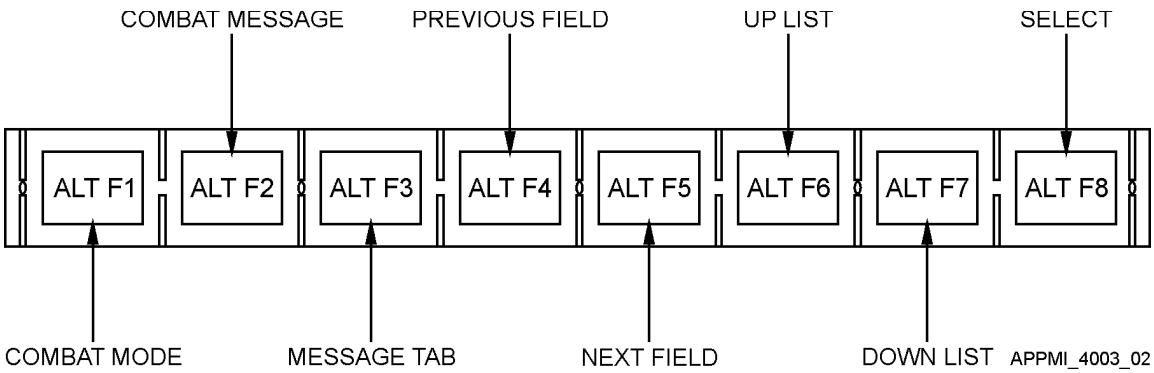


Figure 3. **Display Unit 8-Button Bezel Keypad**

The following table lists the software functions that can be performed from the 8-Button Bezel Keypad keys located on the two different Display Unit (DU) types. The DU retrofit will relabel all 8-button bezel keypads to be consistent with each other by using Alt-F1 through Alt-F8. Although the labeling on the bezel keypads may be different, the FBCB2 software functionality is identical.

Table 2. Display Unit 8-Button Bezel Keypad Labels/Function

8 BUTTON BEZEL KEYPAD LABEL			
DISPLAY UNIT NSN 7025-01-474-0229	**DISPLAY UNIT NSN 7025-01-474-0280**	**DISPLAY UNIT LABELING RETROFIT**	**FBCB2 SOFTWARE FUNCTION**
F1 key	**Cbl Mode** key	**ALT F1** key	Combat Mode - functions as an on/off toggle, which when selected, will cause the Ops Function Bar to disappear from the screen so as to display that portion of the SA map area covered by the footprint of the Ops Function Bar.
F2 key	**Cbl Msg** key	**ALT F2** key	Combat Message - provides access to the Combat Message dialog box.
F3 key	**Msg Tab** key	**ALT F3** key	Message Tab - cycles through the message tabs within the Combat Message dialog box.
F4 key	**Prv Field** key	**ALT F4** key	Previous Field - moves the cursor to the previous data entry field.

DISPLAY UNIT (DU)–Continued

Table 2. Display Unit 8-Button Bezel Keypad Labels/Function–Continued

8 BUTTON BEZEL KEYPAD LABEL			
DISPLAY UNIT NSN 7025-01-474-0229	**DISPLAY UNIT NSN 7025-01-474-0280**	**DISPLAY UNIT LABELING RETROFIT**	**FBCB2 SOFTWARE FUNCTION**
F5 key	**Nxt Field** key	**ALT F5** key	Next Field - moves the cursor to the next data entry field.
F6 key	**Up List** key	**ALT F6** key	Up List - moves the cursor up on a displayed list.
F7 key	**Down List** key	**ALT F7** key	Down List - moves the cursor down on a displayed list.
F8 key	**Select** key	**ALT F8** key	Select - selects the highlighted option.

KEYBOARD UNIT (KU)

The Keyboard Unit (KU) connects to the computer via a cable to the Display Unit (DU) and provides the same keys as a regular 101-key QWERTY Keyboard. The KU is the primary device for the user to input the various fields in the dialog boxes of the FBCB2 software. The following figures provide a comparison of the two different keyboard configurations and identify some of the special keys. The keys and mouse-pointing-device are described in the following sections.

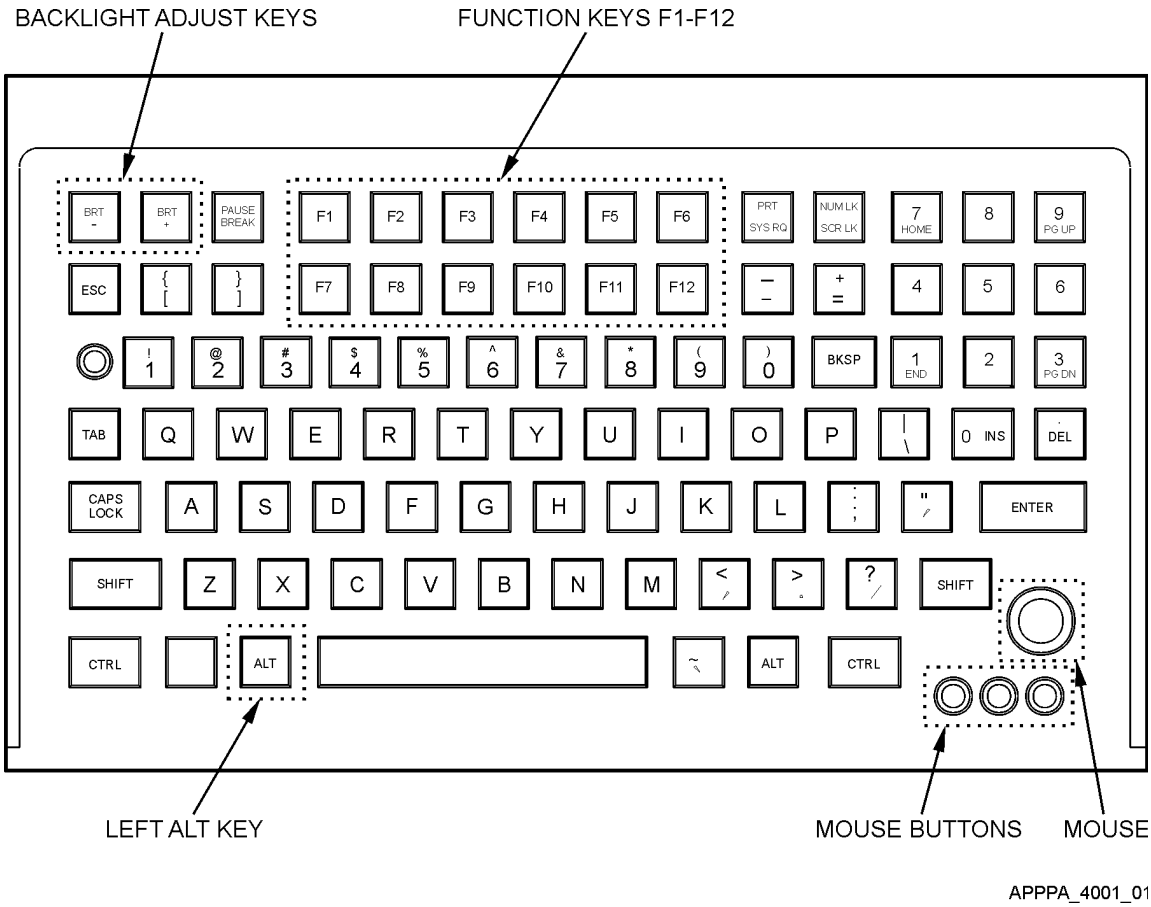


Figure 4. **Keyboard Unit (KU) (NSN 7025-01-474-3792/NSN 7025-01-496-9879)**

KEYBOARD UNIT (KU)–Continued

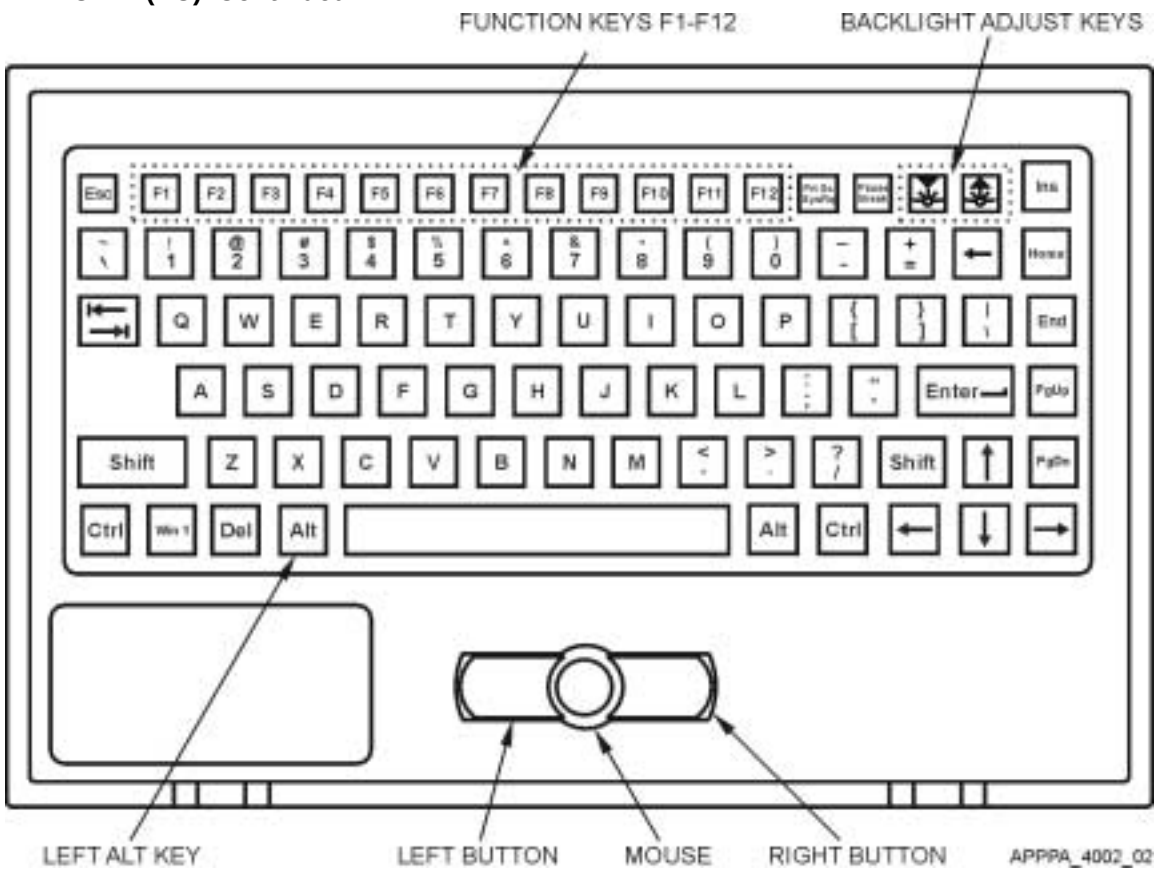


Figure 5. **Keyboard Unit (KU) (NSN 7025-01-474-3791/NSN 7025-01-487-0581)**

Keyboard Unit Function Keys. The Function **F1** through **F8** keys are operational when the Ops Main Screen is displayed. Function keys **F9** through **F12** are not used. The function keys on the Keyboard Unit when pressed, correspond to the FBCB2 software buttons on the Ops Function Bar. When the Keyboard Unit (KU) left **Alt** key and function key is pressed together, they correspond to the Display Unit (DU) 8-Button Bezel Keypad software functions.

Table 3. Keyboard Unit Function Keys

KEYBOARD FUNCTION KEY	SOFTWARE FUNCTION (Ops Function Bar)	KEYBOARD FUNCTION KEY	SOFTWARE FUNCTION (8-Button Bezel Keypad)
F1 key	Map	(Left) **Alt + F1** key	Combat Mode - functions as an on/off toggle, which when selected, will cause the Ops Function Bar to disappear from the screen so as to display that portion of the SA map area covered by the footprint of the Ops Function Bar.
F2 key	Filters	(Left) **Alt + F2** key	Combat Message - provides access to the Combat Message dialog box.

KEYBOARD UNIT (KU)–Continued

Table 3. Keyboard Unit Function Keys–Continued

KEYBOARD FUNCTION KEY	SOFTWARE FUNCTION (Ops Function Bar)	KEYBOARD FUNCTION KEY	SOFTWARE FUNCTION (8-Button Bezel Keypad)
F3 key	Combat Msgs	(Left) **Alt + F3** key	Message Tab - cycles through the message tabs within the Combat Message dialog box.
F4 key	Messages	(Left) **Alt + F4** key	Previous Field - moves the cursor to the previous data entry field.
F5 key	Status	(Left) **Alt + F5** key	Next Field - moves the cursor to the next data entry field.
F6 key	Admin	(Left) **Alt + F6** key	Up List - moves the cursor up on a displayed list.
F7 key	Apps	(Left) **Alt + F7** key	Down List - moves the cursor down on a displayed list.
F8 key	Help	(Left) **Alt + F8** key	Select - selects the highlighted option.
F9 key	Not Used	(Left) **Alt + F9** key	Not Used
F10 key	Not Used	(Left) **Alt + F10** key	Not Used
F11 key	Not Used	(Left) **Alt + F11** key	Not Used
F12 key	Not Used	(Left) **Alt + F12** key	Not Used

Backlighting. The Keyboard Unit (KU) is backlit for use at night. For the KU shown in this work package, Figure 4, the backlight adjust keys are adjustable from no-visible-backlight to maximum backlight by holding down the **BRT -** key to decrease backlighting or holding down the **BRT +** key to increase backlighting. For the KU shown in this work package, Figure 5, the backlighting is adjustable in six steps, from no-visible-backlight to maximum backlight.

The "Black Out" mode will override any keyboard backlighting adjustment/setting when engaged, i.e., the **BLK OUT** button on the Controls and Indicators Panel is pushed.

Mouse Pointing Device. The mouse-pointing-device for Keyboard Unit (KU) shown in this work package, Figure 4, has the mouse button and three buttons located below it. The mouse pointer on the Keyboard Unit (KU) shown in this work package, Figure 5, has three parts, the left button, the right button and the mouse button. Each mouse pointer operates similarly and each has the same functionality. The left button selects an object or executes a function. Use the center button on the three-button mouse (or the left and right mouse buttons together on the two-button mouse) to move selected files from one folder to another. The right button opens Help in the "Messages" dialog boxes. Select a text box using the left button and then press the right button. This opens a small field, which shows the type of data entry field and the limits of the field. Mouse movement occurs by applying pressure on the edges of the center mouse button. Applying more pressure on the center mouse button causes the speed of the {Arrow Pointer} to increase. Apply pressure on the left side to move left. Apply pressure on the right side to move right. Apply pressure on the upper part to move up. Apply pressure on the lower part to move down. Pressing between the points described above causes the {Arrow Pointer} to move in diagonal directions.

Shift Key. This key activates the upper characters seen on some of the keys. Press the **Shift** key and another key to get the upper symbol on the key (e.g., **Shift** + **2** = @, **Shift** + **7** = &, etc.). Also hold down shift key to capitalize a letter when typing (e.g., **Shift** + **A** = A).

Number Keypad. The NUM LK (Number Lock) key and number keypad perform no functions at this time.

WIN 1. This key performs no function at this time.

INS Key. This key performs no function at this time.

Ctrl Keys. These keys do not perform any function.

KEYBOARD UNIT (KU)–Continued

Alt Keys. The left **Alt** key pressed in conjunction with one of the **F1** through **F8** Keyboard Unit (KU) function keys is another way to get the same functions as from the 8-Button Bezel Keypad. Refer to Table 3. for the software function shown when using the **Alt** key in conjunction with the **F1** through **F8** KU function keys. The right **Alt** key does not perform any function at this time.

PROCESSOR UNIT (PU)

The Processor Unit (PU) has a single control for the operator's use, the PU Circuit Breaker (CB)/toggle switch. The CB/toggle switch must be in the ON position before pressing the **PWR** button on the Controls and Indicators Panel on the Display Unit (DU). The ON position is toward the center of the PU. The OFF position is toward the edge of the PU.

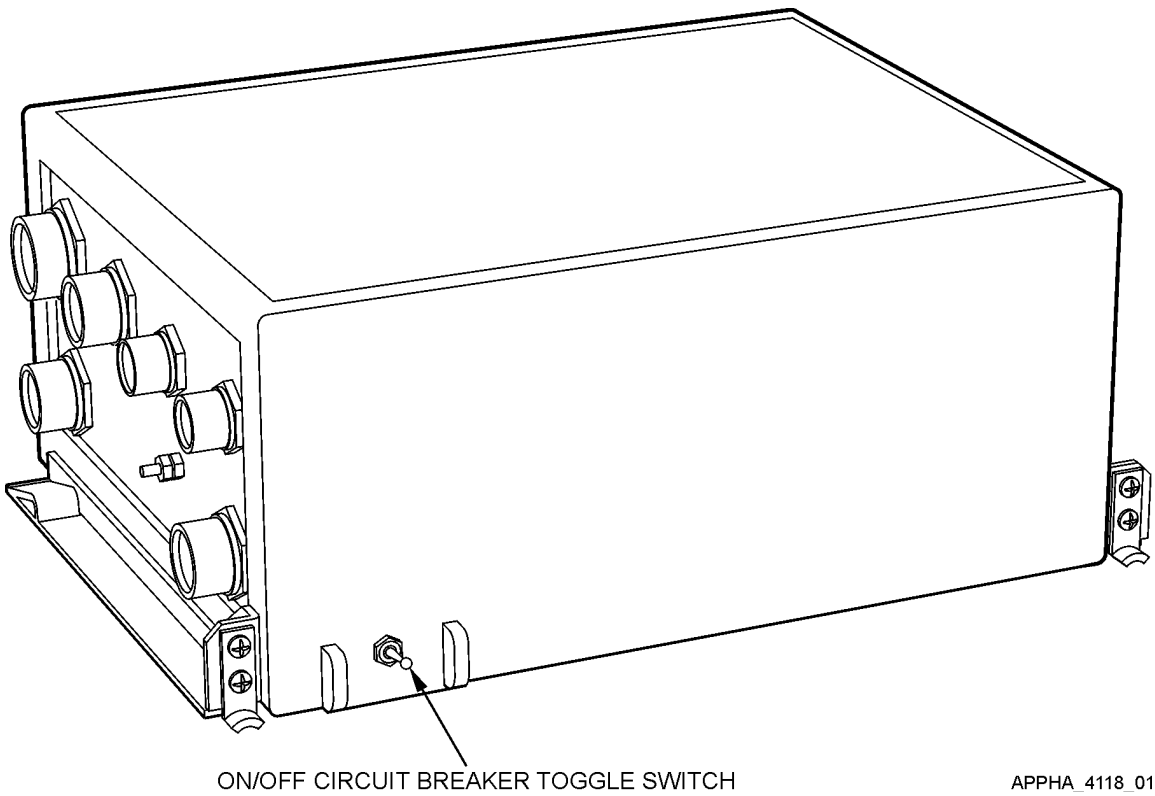


Figure 6. **Processor Unit (PU) (Typical)**

SOFTWARE FUNCTIONALITY

The FBCB2 software has two major screens. The first is the Session Manager screen and the second is the Operations (Ops) Main screen. All operations can be accessed from these screens. Refer to the embedded Software User's Manual (SUM) for more detailed information on software operations. To access the SUM, either online or offline:

1. Select the **Start** button in the Task Bar
2. Select the **Help** menu option
3. Select the **Software Users Manual** option

Session Manager Screen. The Session Manager screen is where many functions can be performed, including Clear Logs & Queues, viewing network, Software Version and Server information, Touchscreen calibration, mouse and time setup. Once the AN/UYK-128(V) Computer is powered-up and the operating system loads the software, the FBCB2 Session Manager Screen is displayed. This screen provides access to the entire FBCB2 software suite. The main components of the Session Manager Screen are described following the figure.

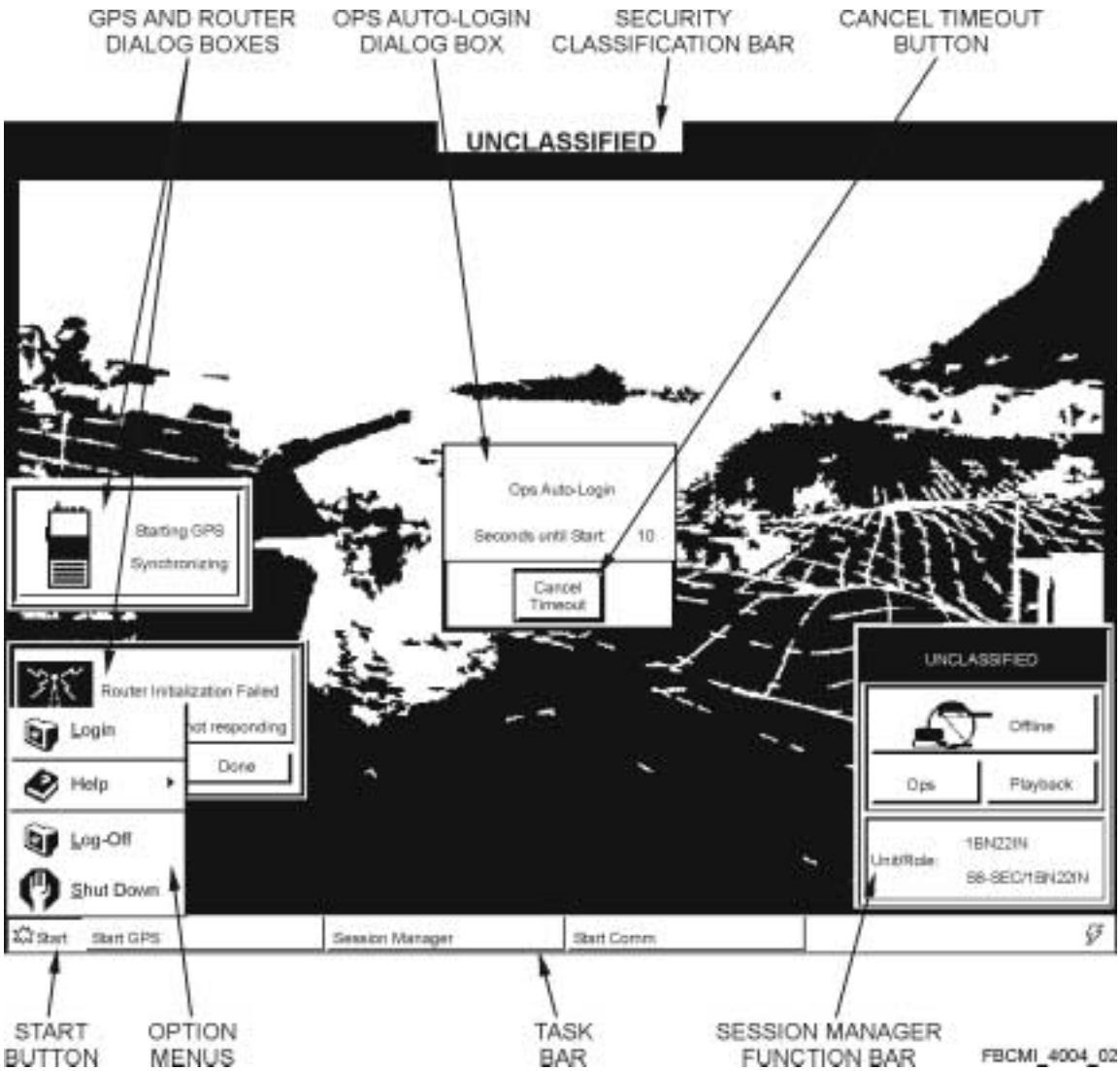


Figure 7. **Session Manager Screen (During Login)**

SOFTWARE FUNCTIONALITY–Continued

Table 4. Session Manager Screen Definitions

NAME	DEFINITION
Background Photograph	A static background picture of a battlefield is displayed while the computer is in the Session Manager function. Situational Awareness (SA) data is not provided by the system while in the Session Manager function.
GPS and Router Dialog Boxes	The GPS and Router dialog boxes are displayed on the Session Manager screen and continuously updated during Comm startup. Check the color of the dialog boxes to determine operational status. Green color coding indicates that the equipment is fully mission capable. Red color coding indicates that initialization has failed and that the system is not responding.
Ops Auto Log-in Dialog Box	The FBCB2 count down timer has a 20 second time limit. If the timer is allowed to go to zero, the FBCB2 System will automatically begin to go online.
Security Classification	This banner displays the system security classification of the FBCB2 information being presented, either UNCLASSIFIED or SECRET.
Cancel Timeout Button	The Cancel Timeout Button will bypass the FBCB2 count down timer and immediately begin the login process.
Session Manager Function Bar	The Session Manager Function Bar consists of function buttons and text boxes. The function buttons allow the operator to activate the Operations (Ops), view the Offline/Online status, check the Unit/Role information and initiate the playback function.
Task Bar	The Task Bar is visible at all times and contains a Start button with menus, as well as boxes that indicate which applications are currently open.
Option Menus	The Option Menus are cascading lists of function choices available to the user.
Start Button	The Start Button activates a Start menu and is located on the Task Bar. The Start menu includes the following options (during login) : Login, Help, Log-Off, and Shut Down. Refer to WP 0004 00 SOFTWARE FUNCTIONALITY.

SOFTWARE FUNCTIONALITY–Continued

Ops Main Screen. Selecting the **Ops** button on the Session Manager Function Bar allows the operator to access the Ops Main Screen. The Ops Main Screen has several areas defined in Table 5. All Ops functions are accessible from the Ops Function Bar on the Ops Main Screen.

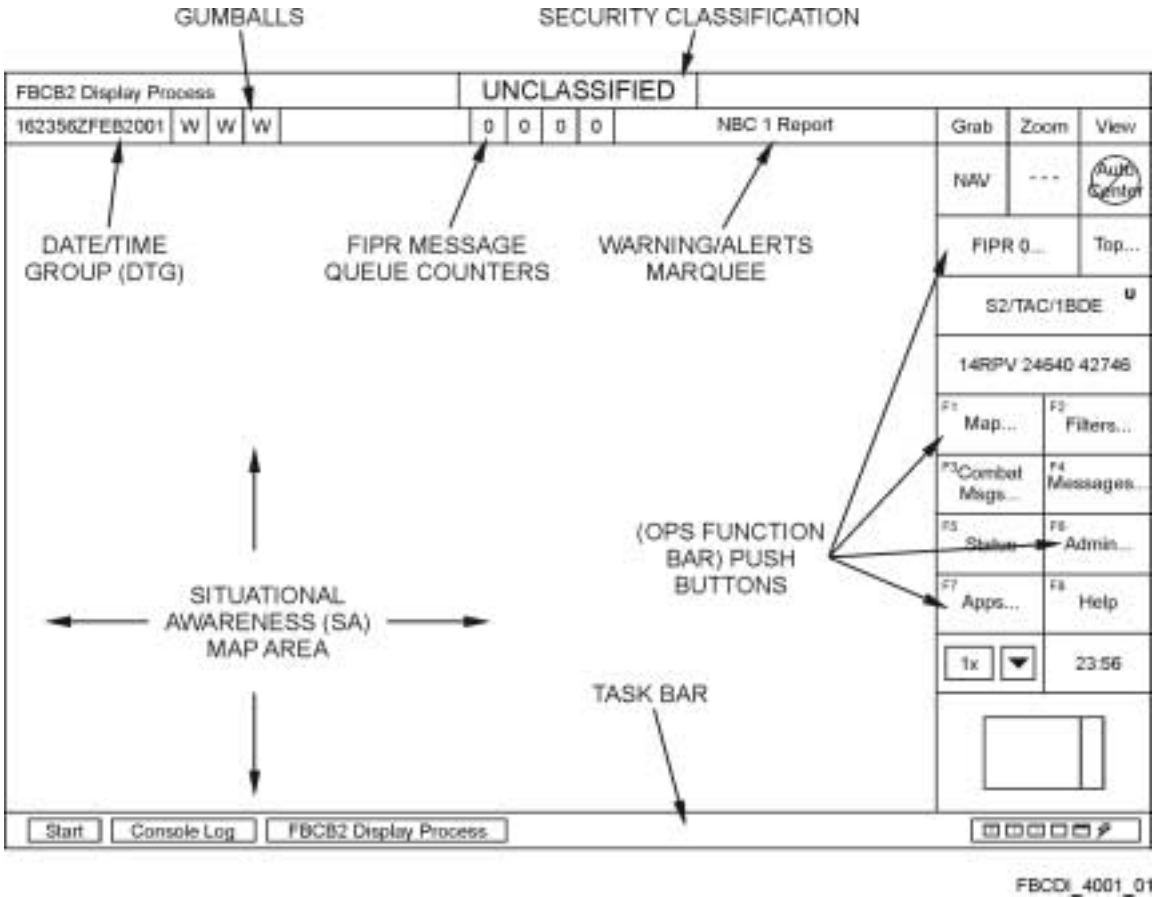


Figure 8. **Ops Main Screen**

Table 5. Ops Main Screen Definitions

NAME	DEFINITION
Date/Time Group (DTG)	Date/Time Group uses an alpha-numeric format: ddhhmmZmmmyyyy. All times are Zulu time (i.e., Greenwich Mean Time). The DTG field will be blank until the first Global Positioning System (GPS) time is available. Once the system has established connectivity with the GPS, the DTG field will display the current Greenwich Mean Time (GMT) in military DTG format (i.e., ddhhmmZMMMyyyy). The current local time can be set to appear at the bottom right corner beneath the **Help** button on the Ops Function Bar.
Gumballs	The Communication Status Indicators provide a color-coded current status display of the communication network connectivity. The first indicator represents the rollup status of the communications systems, (i.e., SINCGARS ASIP, EPLRS, MILSATCOM, if equipped). The second indicator represents the rollup status of the Global Positioning System (PLGR). If your platform is configured to include additional communication equipment (i.e., LRAS3, CEMBIO) additional gumballs will display. The following color coding represents the communications status: Green = System Operational, Amber = System Degraded, Red = System Not Operational, and White = System Not Tested. On each indicator, the first letter of the color is also designated, (i.e., G = green, A = amber, R = red, and W = white). The operator can obtain more detailed status information on these system interface devices by accessing the **F5 Status** button on the Ops Function Bar.

SOFTWARE FUNCTIONALITY–Continued

Table 5. Ops Main Screen Definitions–Continued

NAME	DEFINITION
FIPR Message Queue Counters	These message counters display the number of unread Flash, Immediate, Priority, and Routine (FIPR) messages currently in your queue. The Flash/Immediate/Priority/Routine (FIPR) message notification area consists of four boxes. These boxes reflect the number of messages for a given priority. The first box is for Flash messages, the second box is for Immediate messages, the third box is for Priority messages, and the fourth box is for Routine messages.
Security Classification	This banner displays the system security classification of the FBCB2 information being presented, either UNCLASSIFIED or SECRET. The System Security Classification Label displays the security classification with the appropriate background color (i.e., Red = SECRET and Green = UNCLASSIFIED).
Warning/Alerts Marquee	The Warnings/Alerts Marquee displays (i.e., scrolls) life threatening warnings and alerts received by your FBCB2 System. The Warnings/Alerts Text Marquee displays life-threatening warning and alert messages (e.g., Nuclear, Biological, Chemical (NBC) Alert). When the system receives a life-threatening warning, it provides a visual cue. This includes scrolling text across the Warnings/Alerts Marquee and highlighting an exclamation point in front of the **FIPR** button on the Ops Function Bar. The user can adjust the time interval between the alerts/warnings displayed on the marquee.
(Ops Function Bar) Push Buttons	Select a push button to initiate the function represented by that button.
Task Bar	The Task Bar is visible at all times and contains a Start button with menus, as well as boxes that indicate which applications are currently open.
Situational Awareness (SA) Map Area	The Situational Awareness (SA) map area is a collection of geo-references, including near-real-time and non real-time data. SA provides the timely distribution and display of information, so that all FBCB2 platforms have a common up-to-date picture of the battlefield. The FBCB2 System provides each platform with SA data of the battlefield. FBCB2 processes the SA data received, which is considered to be accurate, near-real-time information with enhanced graphic/visual presentations of the changing situation on the battlefield. The incoming SA data is extracted from Joint Variable Message Format (JVMF) messages, which provide the "real-time" awareness of the battlefield situation. The Situational Awareness (SA) map area is capable of displaying both friendly and enemy unit icons, labels, and geo-reference objects.

SOFTWARE FUNCTIONALITY–Continued

OPS Function Bar. The Ops Function Bar is located to the right of the Situational Awareness (SA) display area, on the Ops Main Screen. The Ops Function Bar consists of function buttons, information displays, and an Omni Pan Display Box (battlefield context display). Text labels identify the function of the buttons. When the label includes an Ellipsis (...), it means that button activates a menu or dialog box containing additional information and/or function buttons.

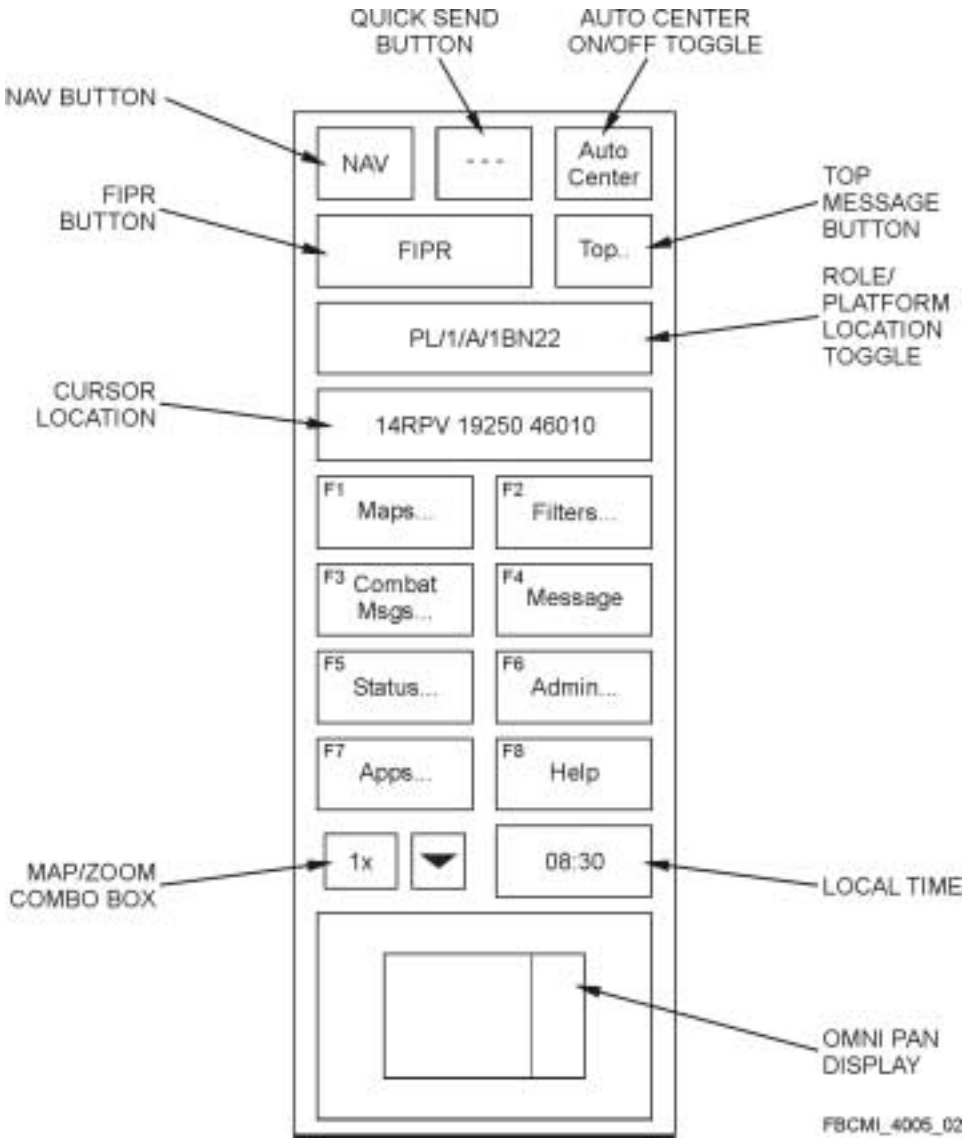


Figure 9. **Ops Function Bar**

Table 6. Ops Function Bar Definitions

NAME	DEFINITION
Navigation (NAV) Button	The **NAV** button, located at the top of the Ops Function Bar, is used to access the Navigation feature for mobile platforms.]
Quick Send Button	The **- - -** button is used to transmit a pre-designated message instantly. The operator fills out a message template in advance of the anticipated message transmission time and assigns the message to the Quick Send button. The operator enters his/her own label on the button, which is then displayed on the screen.

SOFTWARE FUNCTIONALITY–Continued

Table 6. Ops Function Bar Definitions–Continued

NAME	DEFINITION
Auto Center Button	This on/off toggle button centers the Situational Awareness (SA) map on the platform and continues to re-center the SA map as the platform changes its location. This feature turns off whenever the operator manually repositions the SA map. When this function is toggled off, the **Auto Center** button label displays the international No (Ø) symbol.
Top Message Button	The **Top...** button will display the contents of the highest priority, most recently received message that is in the FIPR Message Queue.
Role/Platform Location Toggle Button	This button toggles between displaying the assigned unit/role designation and the platform location coordinates.
Local Time Display	The "Local Time" display box displays the current time corresponding to a selected time zone. The operator can set the local time by selecting the **F6 Admin...** button and then selecting the **Local Settings** tab group. Select the "Local Time Zone" **down arrow** button and select the "Greenwich Mean Time" zone for the area. This will then work with the system time to display the local time.
Battlefield Context Display (Omni Pan Display Box)	The Battlefield Context Display contains an Omni Pan Display Box that proportionately approximates the size and shape of the Situational Awareness (SA) map display. SA objects are depicted in their relative map positions as Enemy (red), Friendly (blue), Unknown (amber), or Neutral (green) icons. SA objects outside the pan box are located off the SA map display. To view objects outside of the pan box, drag the pan box in any direction to move the SA map in the same direction. The Omni Pan Display Box also continuously depicts the footprint of the Ops Function Bar and will display any icons hidden underneath it. To display/hide that potion of the SA map normally obstructed by the Ops Function Bar, select the **View** button on/off toggle located just above the Auto Center button in the Classification/Status Bar. If the Omni Pan Display Box is used to reposition the Situational Awareness (SA) map, the "Auto-Center" feature will be deactivated.
Map/Zoom Combo Box	This function allows the operator to change the magnification of the map displayed in the Situational Awareness (SA) display area. Select the Map Zoom **down arrow** button and the system displays a listing of zoom settings. The operator selects the desired zoom setting from the provided list. This will display the selected magnification in the Map/Zoom Combo Box and change the SA map to that setting. This is useful if many icons are on the map and the operator desires to see where his unit is amid the clutter. Zooming in will show more detail.

SOFTWARE FUNCTIONALITY–Continued

Table 6. Ops Function Bar Definitions–Continued

NAME	DEFINITION
Cursor Location Button	This button displays the coordinates of the cursor location on the Situational Awareness (SA) map. The system default setting is Military Grid Reference System (MGRS), however; the operator can select the type of coordinate format to display. The coordinate format choices include MGRS, Latitude/Longitude (Lat/Long), Degrees Minutes Seconds (DMS), and Universal Transverse Mercator (UTM). The operator can change the coordinate format by selecting the **Cursor Location** button. The button will cycle through the four types of coordinate types. It is important to keep in mind that the selected coordinate format type controls the format for all coordinates the system displays.
FIPR Button	The Flash, Immediate, Priority, Routine **FIPR...** function button will open the "FIPR" dialog box which contains the message headers for all incoming messages and warnings. The (+) plus sign indicates that some type of Operator Response (OR) is required. The (**!**) exclamation mark indicates that one or more warning messages are in the queue. The number following "FIPR" indicates the total number of messages in the queue. Multiple Warning/Alert messages will be displayed in a scrolling manner. Selecting the **FIPR** button and then choosing the appropriate message header will access the text of the message.

Map Function Button. Selecting the **F1 Maps...** button on the Ops Function Bar opens the "Map Control" dialog box. This provides access to three tab groups. The **Background**, **Grid**, and **Center** tab groups in the "Map Control" dialog box allow the operator to set the background, grid and centering function. The selection of choices in each tab group lets the operator control the scale, brightness, contrast, coordinate type and map sheet selection for the Situational Awareness (SA) display area. For step-by-step procedures on how to set the FBCB2 Map functions, refer to WP 0005 00 SETTINGS.

Background tab group is used to choose the Type, Scale, Zoom magnification, and Appearance (brightness/contrast) of the map display. The FBCB2 software defaults to the Compressed Arc Digital Raster Graphics (CADRG) format, which displays a digital map, including contour lines, detailed fabricated features, and labels. The Vector Product Format (VPF) displays major, man-made and natural features. The Digital Terrain Elevation Data (DTED) type displays the terrain elevation using color graphics.

Grid tab group is used to select the coordinate type, e.g., Military Grid Reference System (MGRS), Latitude-Longitude (Lat/Long), Degrees Minutes Seconds (DMS), or Universal Transverse Mercator (UTM) and the accuracy of MGRS coordinates displayed. There are options to display computer-generated gridlines on the Situational Awareness (SA) display, choose the dimensions for the gridline spacing, and change the gridline color.

Center tab group allows the user to center the Situational Awareness (SA) map on locations that have been sent or received by JVMF message. The operator can select a point on the map or scroll the map in one of 8 cardinal directions (i.e., North, Northeast, East, Southeast, South, Southwest, West, Northwest).

Filters Function Button. The **F2 Filters...** function button displays the "Filters" dialog box containing software controls that allow the user to choose the unit icons and geo-reference icons displayed on the Situational Awareness (SA) display through the **SA** tab. The **Collapse/Expand** tab group is used to select the unit echelon to be displayed. The **Overlays** tab group is used to load and display previously saved overlays. The **Obstacle Overlays** tab group allows you to de-clutter the SA by deleting selected Obstacle Overlay message information. For step-by-step procedures on how to set the FBCB2 Filters functions, refer to WP 0005 00 (Operation Under Usual Conditions).

SA tab group contains check boxes and option buttons that allow the operator to select/deselect the unit icons, labels, and geo-reference objects to display on the Situational Awareness (SA) map.

Collapse/Expand tab group contains a listing of the Unit Task Organization (UTO) displayed in a directory tree format. When the folder is collapsed (closed), only the unit icon representing the indicated command level selected by the user will appear on the Situational Awareness (SA) display, at approximately the center of mass of all subordinate units. When a folder is expanded (opened), these subordinate units will also be displayed on the SA display.

Overlays tab group allows the user to load/unload (and to display/hide) overlays that have been created and saved in message folders and to display/hide all related labels.

SOFTWARE FUNCTIONALITY–Continued

Obstacle Overlays tab group allows the user to delete obstacle overlay information that has been received in Obstacle, Modified Obstacle or Combined Obstacle Overlay messages.

Combat Msgs Button. The **F3 Combat Msgs...** button provides access to the "Combat Messages" dialog box. Combat Messages are Joint Variable Message Format (JVMF) messages that have been modified and grouped together to provide single button access to the message template and fewer keystrokes to complete the template and send the message. For more detailed information on the Combat Messages refer to WP 0005 00 (Operation Under Usual Conditions) of this manual. Additionally, those operators equipped with the Display Unit (DU) and 8-Button Bezel Keypad can access the combat message templates directly from the DU front panel.

Session Manager Function Bar. The Session Manager Function Bar consists of function buttons and text boxes. The function buttons allow the operator to activate the Operations (Ops) and Playback applications and to toggle between the Offline and Online status. Text boxes contain system security classification and identifies the current Unit/Role.

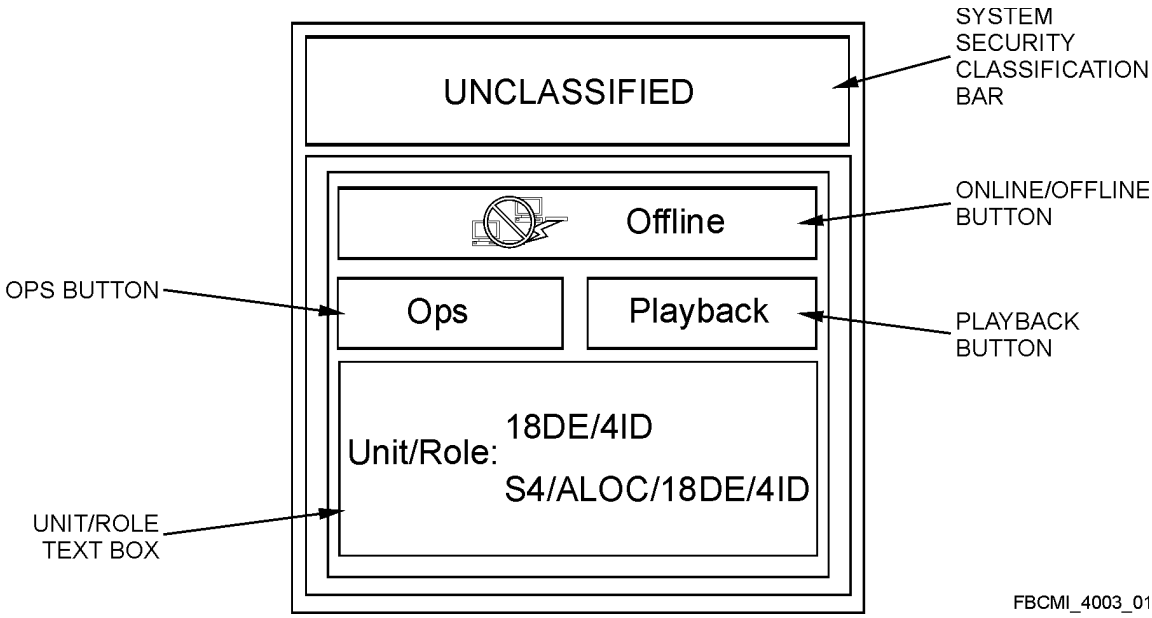


Figure 10. **Session Manager Function Bar**

Table 7. Session Manager Function Bar Definitions

NAME	DEFINITION
System Security Classification Bar	The System Security Classification Bar is located at the top of the Session Manager Function Bar and at the top of the display screen. The security classification is indicated by a system security label with a color-coded background (i.e., Red = SECRET and Green = UNCLASSIFIED).
Online-Offline Button	The **Online-Offline** button toggles between two states. Selecting **Online** starts the Embedded Battle Command (EBC) process. While online, the AN/UYK-128(V) Computer receives and processes data from the FBCB2 network. Selecting **Offline** stops the EBC process. While offline, the AN/UYK-128(V) Computer does not receive or process data from the FBCB2 network. Certain platform settings can only be altered while Offline. The international No (Ø) symbol overlaying the image of two computers shows the Offline mode. Pressing the **Ops** button causes the software to automatically go on-line and brings up the Ops Main Screen. Online is the default mode for this button.

SOFTWARE FUNCTIONALITY–Continued

Table 7. Session Manager Function Bar Definitions–Continued

NAME	DEFINITION
Ops Button	The **Ops** button starts the Embedded Battle Command (EBC) process. After the EBC process has been started, a Department of Defense Warning appears. The user should read the warning then select the **OK** button. The Ops Login appears next. The operator types in the correct password in the Password: text box and then selects the **Continue** button. The FBCB2 Display Process starts. When this process is complete, the Ops Main Screen is displayed.
Playback Button	The **Playback** button opens the Playback function. **Playback** allows the user to play back previous sessions. Playback files are created automatically when the user logs in. The file name starts with the login DTG. The data capture ends when the user logs out. If multiple login sessions occur, then the files will accumulate. When clearing logs and queues, the user should be aware that these files will not be removed from the system unless the "All Messages" check box is selected. If files exist for playback, the system opens the "Playback File" dialog box. Select the starting playback file from the provided list of available files. Use the **down arrow** or the **up arrow** button to scroll through one file at a time. Use the **Pg Down** or **Pg Up** button to scroll one page at a time. After making a selection, the file name appears in the FILE: text box. Select the **Continue** button to start the playback or select the **Cancel** button to close the dialog box. When **Continue** is selected, the system replays all the actions from the selected time frame just like an instant replay. The playback is in real time, meaning that a 4-hour operation plays back in 4 hours. If the operator selects the **Playback** button on the Session Manager Function Bar and no files exist, the system displays a message dialog box in the center of the screen stating, "No files are available for playback". Select **OK** to close the "No PB FILE" dialog box.
Unit/Role Text Box	The Unit/Role text box is a read only text box that shows the platform unit and role information. Each platform is uniquely identified by its operational name, which defines the echelon and unit. The information is provided here, so that if the role data is not correct, the SysAdmin function can be accessed to change the role.

NOTE

It may require several minutes for the system to display the Ops Main Screen after selecting the **Login** button or the **Ops** button.

SOFTWARE FUNCTIONALITY–Continued

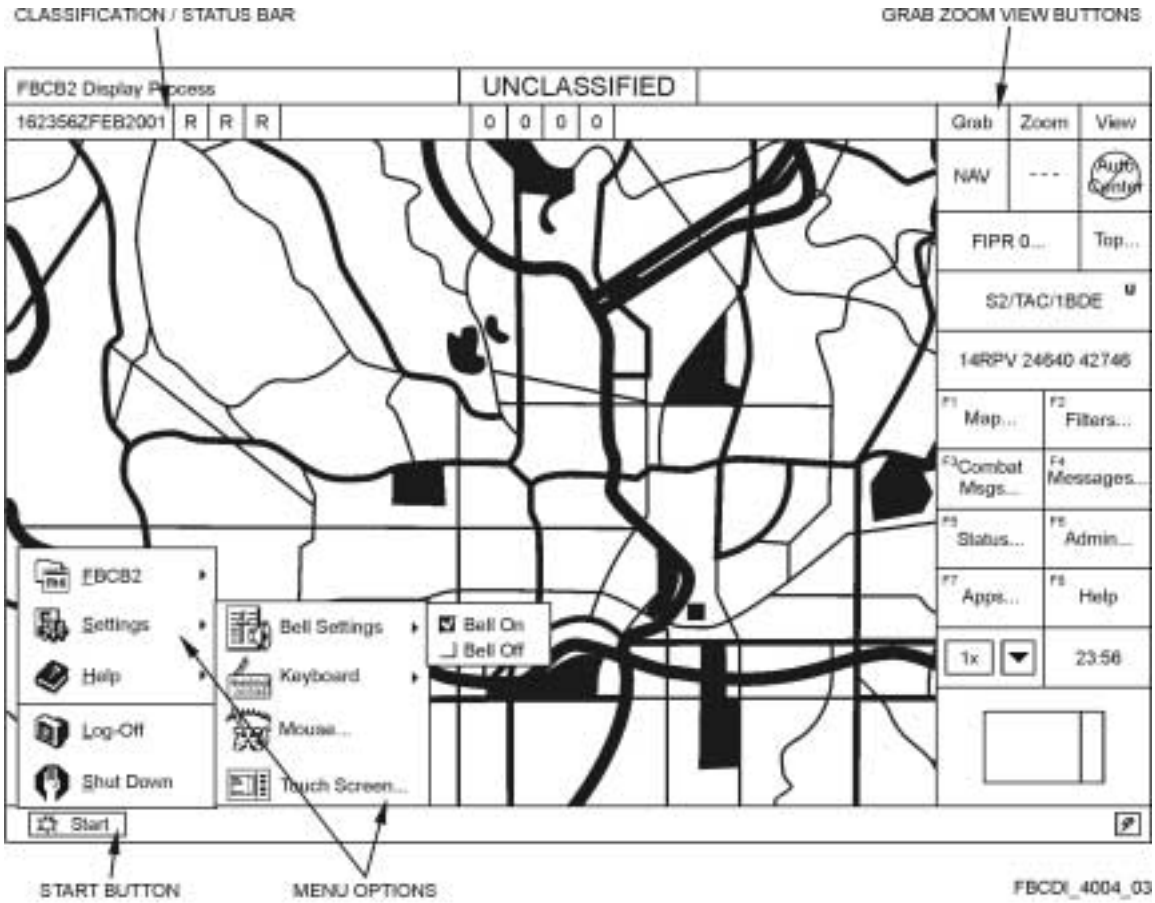


Figure 11. **Ops Main Screen (After Login)**

Table 8. Ops Main Screen (After Login) Definitions

NAME	DEFINITION
Classification/Status Bar	The Classification/Status Bar occupies the upper portion of the Ops Main Screen. This top area is referred to as a "display-only" area. Partitioned to display information in five specific areas, the Classification/Status Bar has the following data fields starting at the left side and continuing to the right side: Date/Time Group (DTG), Communication Status Indicators, Flash, Immediate, Priority, Routine (FIPR) Message Notification, Warnings/Alerts Marquee, and **Grab**, **Zoom**, and **View** buttons. This bar and the information displayed remain visible to the operator throughout the session. The displayed information continually updates as the system interacts with the other battlefield systems, sensors, and support platforms providing near-real-time data.

SOFTWARE FUNCTIONALITY–Continued

Table 8. Ops Main Screen (After Login) Definitions–Continued

Grab, Zoom, and View Buttons	Located on the far right on the Classification/Status Bar, the **Grab** button allows the user to select one or more objects (i.e., icons) on the overlay for manipulation. The **Zoom** button allows the operator to "zoom in" on a particular quadrant on the Situational Awareness (SA) map, to show more detail at that particular location. The **View** button functions as an on/off toggle, which when selected, will cause the Ops Function Bar to disappear from the screen so as to display that portion of the SA map area covered by the footprint of the bar. The Omni Pan Display Box continuously depicts the footprint of the Ops Function Bar and will display any icons hidden underneath it.
Start Button/Menu Options	The **Start** button displays cascading menu options for FBCB2, Settings, Help, Log Off and Shut Down. Refer to WP 0004 00 SOFTWARE FUNCTIONALITY.

SOFTWARE FUNCTIONALITY–Continued

Menu Roadmap of FBCB2 Software Functions. The following figures provide roadmaps to help you to navigate through the hierarchical structure of the FBCB2 software (Offline and Online). These roadmaps can be used to quickly locate specific offline and/or online software functions.

The figures consists of a block diagram showing the software flow from the Offline/Online **Start** button. Notice that the software functionality for the Online **Start** button is different from the Offline **Start** button after login. Only platforms equipped with the Battlefield Combat Information System (BCIS) will include a menu option for the BCIS Control Panel.

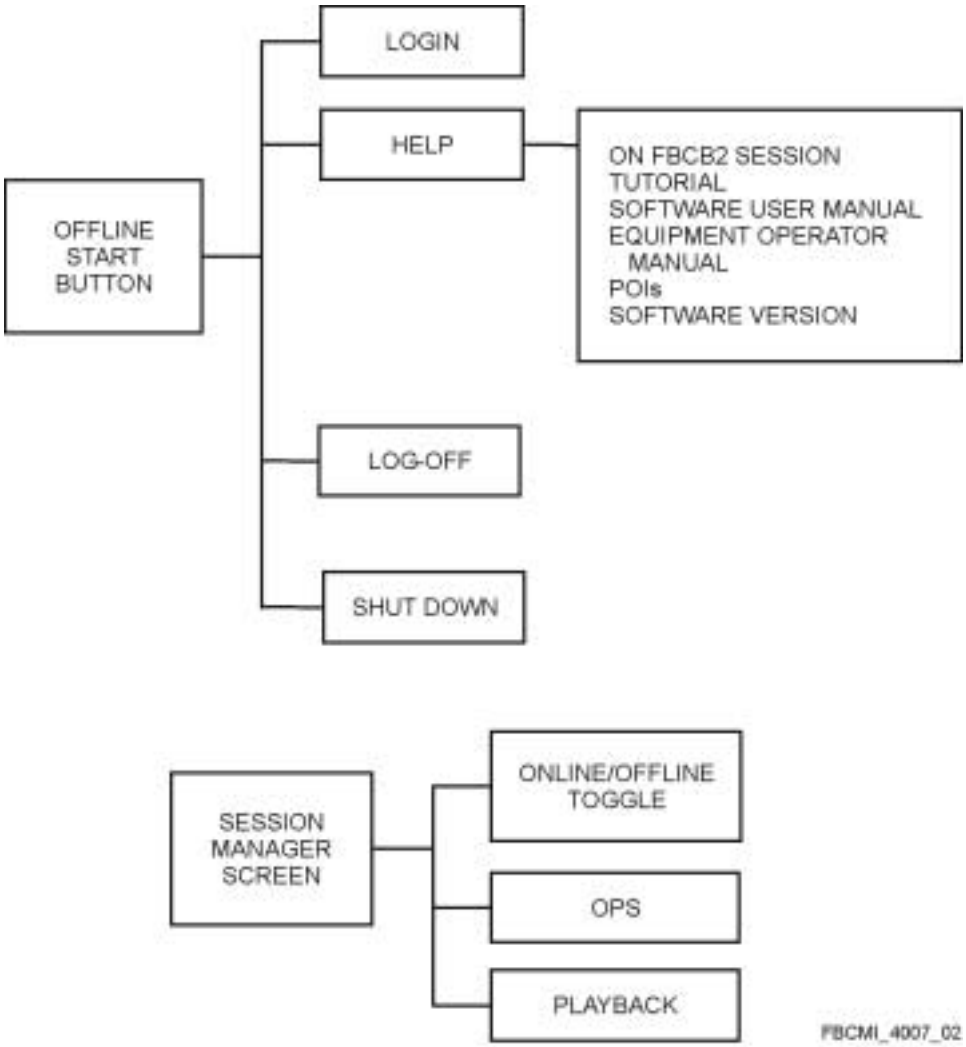


Figure 12. **FBCB2 Offline Menu Roadmap**

SOFTWARE FUNCTIONALITY–Continued

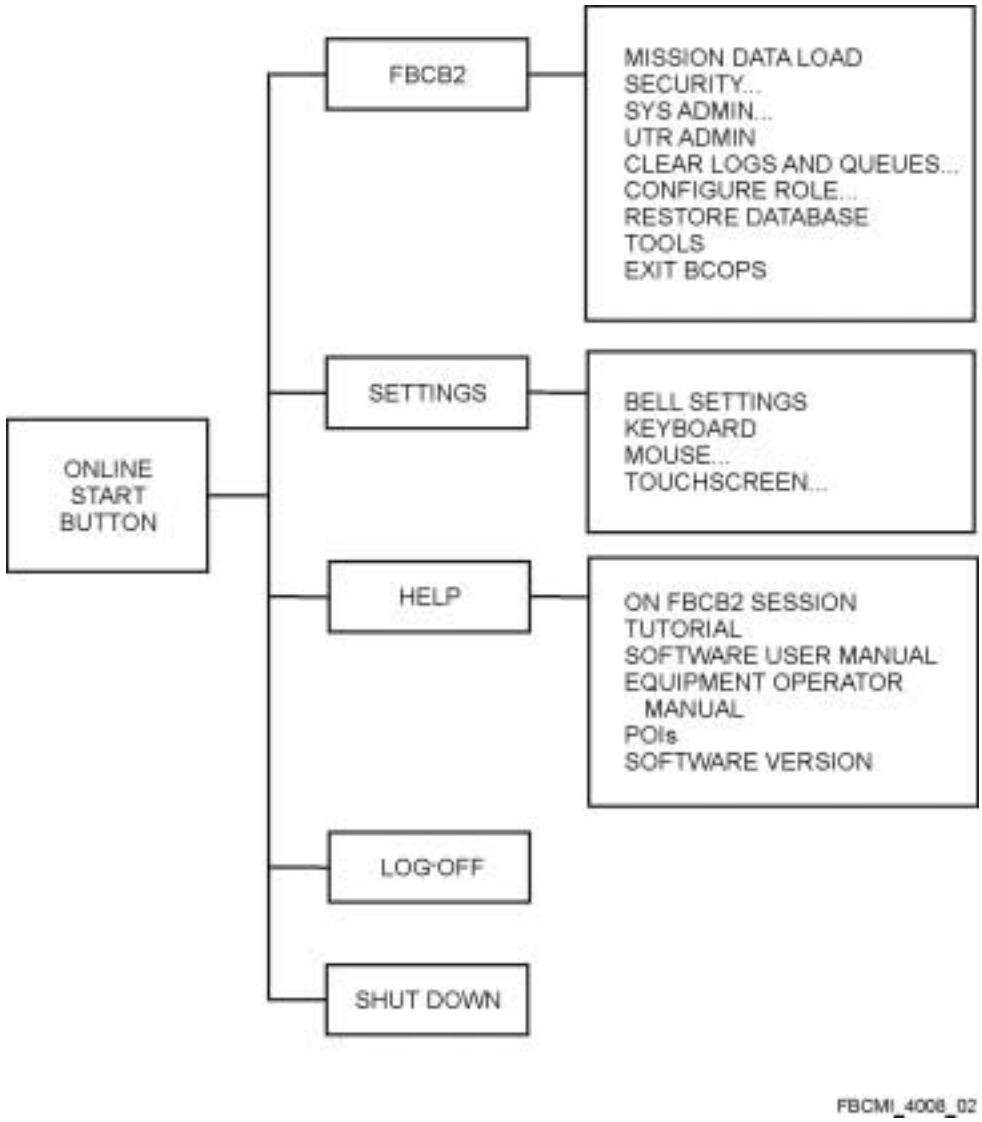


Figure 13. **FBCB2 Online Menu Roadmap**

Start Button. The Start Button allows the user to perform specific functions such as Login or Log-Off or access to cascading menus.

The **FBCB2** menu option, displays a cascading menu containing the following menu options:

The **Mission Data Load**(MDL) menu option provides the means to load new mission data sets and a means to distribute files to FBCB2 equipped platforms when distribution over the Lower Tactical Internet (LTI) is not feasible. The MDL allows the user to group digitized map products, UTO data, security passwords and FBCB2 software patches into organized "mission data sets".

The **Security...** menu option allows an authorized user to access the Security Officer (SO) applications. The Security Officer applications are password-protected.

The **SysAdmin...** (System Administration) menu option contains functions that allow the user to clear logs and queues and configure role. The system must be offline prior to accessing SysAdmin.

UTR Admin menu option requires a password for access and is not available for general purpose operators.

The **Clear Logs & Queues...** menu option allows the user to delete queues, playback logs, user folder entries and Situational Awareness (SA) data from the system memory.

The **Configure Role...** menu option allows you to change your Role/ID and reconfigure the system to the new Role/ID.

SOFTWARE FUNCTIONALITY–Continued

The **Restore Database...** menu option allows the user to restore the database when a hard shut down (turning off power without properly closing software first) has occurred.

The **Tools** menu option is used to view current information about the platform, network, messages, software and the Unit Task Organization (UTO).

The **Exit BCOPS** menu option enables the user to recover when Ops has stopped functioning (i.e., frozen).

The hardware **Settings** menu option contains options to set the system bell, keyboard repeating key, mouse movement and calibrate the touch screen. Refer to WP 0005 00 (Operation Under Usual Conditions) for step-by-step procedures to follow for these optional hardware settings.

The **Help** menu option allows access to Context-Sensitive Help for the Session Manager Screen, the Tutorial, the Software Users Manual, the Equipment Operator's Manual, the Programs of Instruction (POIs), and Software Version information.

The **On FBCB2 Session Menu Option** menu option displays Context-Sensitive Help for the Session Manager screen.

The **Tutorial** menu option supplements FBCB2 New Equipment Training (NET) and helps trained graduates to maintain their FBCB2 proficiency. The operator can access any lesson or module of instruction for which he/she needs sustainment training. The purpose of this tutorial is to provide refresher training for personnel that have previously attended FBCB2 Core training. The tutorial will also list and link to the specific Delta changes to the original Core training.

The embedded **Software Users Manual** (SUM) is designed to provide detailed information about the FBCB2 software operation. Each SUM page has hyperlinks to related pages. For more information on SUM functionality, refer to WP 0005 00 SETTINGS.

The **Equipment Operators Manual** menu option provides the user with quick access to a soft copy of the FBCB2 Operator's Manual in an Interactive Electronic Technical Manual (IETM) format.

The FBCB2 **POIs** (Program of Instruction) are not currently user-functional

The **Software Version** function contains version information on the software, database schema, Variable Message Format (VMF)/Technical Interface Design Plan (TIDP) Messages, Message Headers, and UNIX Pros Parser as well as System Classification, User Classification and Patches installation dates for the system.

The **Logoff** function allows the operator to logoff the FBCB2 System and go offline.

The **Shut Down** menu option is used to shut down the FBCB2 System software. From the Session Manager Screen, the operator must perform an orderly shut down so that the AN/UYK-128(V) Computer retains all program data. Refer to WP 0005 00 (Operation Under Usual Conditions) for the step-by-step shut down procedures. This is the only recommended and safe method for shutting down the AN/UYK-128(V) Computer and software

Situational Awareness (SA) Map Data.

Near-Real-Time Data. Near-real-time data changes rapidly, is transmitted often and is generally disseminated automatically. Near-real-time data includes:

1. Platform Data = The FBCB2 host platform's own position.
2. Friendly Data = The positions of friendly units and platforms.
3. Enemy/Unknown Data = The positions of enemy units and platforms.
4. Alerts = Warnings in response to dangerous conditions within your platform's battlespace.

Units are depicted on the Situational Awareness (SA) map display by their appropriate military symbol surrounded by a circle, diamond, quatrefoil or square. The system uses colors to depict units. These colors are:

1. Friendly (blue circle).
2. Enemy (red diamond).
3. Neutral (green square).
4. Unknown (amber quatrefoil).

Non Real-Time Data. Non real-time data is relatively stable, seldom transmitted and is usually generated/transmitted through operator actions. Non real-time data includes:

1. Map/Terrain/Elevation Data.
2. Navigation Data - manually generated waypoints, routes and danger zones.
3. Overlays - manually generated graphical plans or descriptions of the situation.
4. Other Geo-reference Data - positions other than units or platforms (e.g., control measures).
5. Imagery - video images (such as satellite photos) of geographic areas.

SOFTWARE FUNCTIONALITY–Continued

Other Situational Awareness Data. Other Situational Awareness (SA) data is data that is not referenced to a geographic location. The data includes:

1. Unit Status Data - Personnel; Vehicle; Petroleum, Oil, Lubricants; and Ammunition status of a platform or unit.
2. Communications Connectivity Data - the Embedded Battle Command network connectivity.

Hooking Function. The Hooking function allows the operator to select object icons from the Situational Awareness (SA) map and display the "Hook" dialog box containing details about the selected icons. Access level 1 operators can edit or delete geo-reference objects created by their own FBCB2. Access level 2 or greater operators can edit or delete all icons except ASAS reported data and friendly platform data. The "Hook" dialog box allows the object originator to edit or delete the object. This dialog box also appears when the **Details...** button is selected in the **Center-Unit/Platform** tab group in the "Map Control" dialog box. Similar to the Hooking function, the **Grab** button allows the user to select one or more objects (i.e., icons) on the overlay for manipulation.

FIPR Messages/Warnings. The FIPR button will open the FIPR dialog box which contains the message headers for all incoming messages and warnings. The **Warnings** tab has two sub-tabs. These are the **Danger Zone** tab and the **Marquee** tab. The **Danger Zone** tab group lists the Type, Distance to the Danger Zone, Direction, Location and Message Originator. The **Danger Zone** tab group includes a **Details...** button, which displays a "Hook" dialog box containing information about the selected Danger Zone. The **FIPR...** button and the priority tabs may display label markings indicating the presence of Alert and Operator Response type messages and the total number of messages in each queue.

1. An exclamation point displayed on the **! FIPR...** button indicates one or more Alert messages are in the queue.
2. A plus mark displayed on the **+ FIPR...** button indicates one or more messages requiring an Operator Response (OR) are in the queue.
3. A number displayed on the **FIPR - 3...** button indicates the total number of messages in the FIPR queue. A number on the tab label indicates the total number of messages in that queue.

Danger Zone Tab. The **Danger Zone** tab group displays the Type, Distance, Direction, Location and Originator of all Danger Zone information received. Danger Zone information is transmitted in specific Joint Variable Message Format (JVMF) messages as Situational Awareness (SA) data. FBCB2 receives the message and will display the SA data and display all Danger Zone information in the Danger Zone Tab Group. When the platform penetrates the Safety Radius of a Danger Zone, the FBCB2 alarm is triggered, an alert message is displayed on the Warnings/Alerts Marquee and an entry is made in the Warnings Tab Group. The following table shows the Type of Danger Zone with its associated Safety Radius.

Table 9. Type of Danger Zone With Safety Radius

MESSAGE TYPE	TYPE OF DANGER ZONE	SAFETY RADIUS (METERS)
NBC1	Chemical	500
Obs/NBC1	Biological	500
Obs/NBC1/Strike Warning	Nuclear	1000
Obstacle Position	Enemy Aircraft	5000
Obstacle Position	Enemy Formation	4000
Obstacle Position	Enemy Field Fortifications	1500
Obstacle Position	Enemy Multiple Rocket Launcher	4000
Obstacle Position	Enemy Air Defense Artillery	4000
Obstacle Position	Enemy Assembly Area	4000
Obstacle Position	Enemy Buildings	1500
Obstacle Position	Enemy Equipment	4000
Obstacle Position	Enemy Command Center	1500
Obstacle Position	Enemy Supply Dump	1500

SOFTWARE FUNCTIONALITY–Continued

Table 9. Type of Danger Zone With Safety Radius–Continued

MESSAGE TYPE	TYPE OF DANGER ZONE	SAFETY RADIUS (METERS)
Obstacle Position	Enemy Rocket Missiles	4000
Obstacle Position	Enemy Vehicles	4000
Obstacle Position	Enemy Armor Combat	4000
Obstacle Position	Enemy Artillery	4000
Obstacle Position	Enemy Mortar	8000
Obstacle Position	Enemy Weapons	1500
Obstacle Position	Enemy Personnel	1500
Obstacle Position	Enemy Unknown	4000
Obstacle Position	Fire Mission	600
Obstacle	Minefield Anti Personnel	500
Obstacle	Minefield Anti Tank	500
Obstacle	Minefield Mixed	500
Obstacle	Minefield Unknown	500
Obstacle	Chemical Nerve	500
Obstacle	Chemical Blood	500
Obstacle	Chemical Blister	500
Obstacle	Chemical Choking	500
Obstacle	Booby Traps	500
Obstacle	ABATIS	500
Obstacle	Craters	500
Obstacle	Anti Tank Ditch	500
Obstacle	FASCAM	500
Obstacle	Bunker Strong Point	1500
Strike Warning	Conventional	1000
Threat Warning	NBC	500
Threat Warning	Antiaircraft Artillery	4000
Threat Warning	Aircraft	10000
Threat Warning	Air To Air Missile	10000
Threat Warning	Surface To Air Missile	1500
Threat Warning	Surface To Surface Missile	10000
Threat Warning	Air To Surface Missile	15000
Threat Warning	Unknown	4000

SOFTWARE FUNCTIONALITY–Continued

Marquee Tab. The **Marquee** tab group lists all active life-threatening Warnings. The **Marquee** tab group will display all the alerts received including the "Danger Zones", if the platform happens to penetrate inside of the safety radius.

Table 10. Types of Warning Messages

MESSAGE NAME	ALERT TRIGGER	MSG TYPE	ACCESS LEVEL
MOPP Alert	Yes	Fires/Alerts	Platform
NBC 1 Report	Yes	Reports	Platform
NBC 3 Report	Yes	Reports	CO/BTRY/TRP
NBC 4 Report	Yes	Read Only	Platform
REDCON Alert	Yes	Fires/Alerts	Platform
Strike Warning	Yes	Fires/Alerts	CO/BTRY/TRP
Threat Warning	Yes	Fires/Alerts	CO/BTRY/TRP

COMMON SOFTWARE BUTTONS

The common software buttons that are found on all the dialog boxes in the FBCB2 software are described in the following paragraphs. Each button in the dialog boxes performs generally the same software operation, therefore the functionality described in this section applies to the FBCB2 software in general.

OK Button. The **OK** button will apply all changes that have been made in the dialog box. After the system has updated and saved the changes, the current dialog box closes and the system returns to the Ops Main Screen or the previous dialog box if more than one dialog box is open.

Apply Button. The **Apply** button will apply all changes that have been made in the dialog box. After the system has updated and saved the changes, the current dialog box remains open. This allows the operator to make further changes.

Close Button. The **Close** button will cause the system to close the current dialog box and return to the Ops Main Screen. The Situational Awareness (SA) map and Ops Function Bar is visible.

Help Button. The **Help** button will cause the system to open the "Help" dialog box. The operator can access help for the current dialog box or can access the help index for information about other topics.

Set Defaults Button. The **Set Defaults** button will allow changes customized by the operator to become the new default settings. These customized system settings are replaced only for the current session and are applicable only to the current dialog box.

Restore Defaults Button. The **Restore Defaults** button will change the default back to those settings that the system uses as it is booting up. This is only applicable to the current dialog box.

Send Button. Select the **Send** button to send the completed message. The message is sent to the addressees shown in the Action and Info addressees dialog boxes.

Save Button. Select the **Save** button to save the completed message. The message is saved to a folder that the user creates. This button is used when the user wishes to save any changes to an existing message.

Long Form Message Button. The **Long Form Message...** button will cause the system to access the Long form Message version of the selected Combat Message.

Execute Button. The **Execute** button will open the selected item. Select the item (e.g., a certain message type, an application, etc.). Select the **Execute** button and the associated dialog box will open.

Refresh Button. The **Refresh** button will cause the system to perform a query of the incoming messages. Any messages applicable to the current dialog box are updated and then reflected in the current dialog box. When a message has been received that is relevant to the current function the user is in, an icon will appear on the **Refresh** button. This icon has an amber background with a black flag on the foreground.

SOFTWARE FUNCTIONALITY–Continued

Exit Ops Button. The **Exit Ops...** button will cause the system to stop processing all information. The current dialog box closes and the FBCB2 software returns to the Ops Main Screen. From here the software stops all Ops processing and closes the Ops Main Screen. After proper shut down of the Ops Main Screen, the Session Manager Screen appears.

Destroy FBCB2 Button. The **Destroy FBCB2** button initiates a sequence of events that cause the Hard Disk Drive data to be overwritten, the INC to be reset to factory defaults and the FBCB2 database to be destroyed. Selecting this button brings up a dialog box that allows the user to select the **Now** button to start the sequence immediately or the user can **Cancel** the request. After this button is selected the user only has 15 seconds to exercise the cancel option.

Restore Tabs' SA Default Value Button. The **Restore Tabs' SA Default Values** button is found under the **SA Settings** tab group in the "Admin" dialog box. When this button is selected by the operator, the FBCB2 System will restore the values of the displayed tab group to the original default values.

Message Addressing Button. Selecting the **Message Addressing...** button allows the operator to change the transmission settings for a single message.

Delete Button. Selecting the **Delete** button allows the operator to delete a selected entry. The entry must be highlighted.

Save As Button. Selecting the **Save As** button allows the operator to save the same message as a different name. Then the message can be modified with different entries and then resent as a new message. If a new message has been created, the operator must first save the message. Use the **Save As** button to save the message the first time.

CURSOR/POINTER DEFINITIONS

The cursors/pointers on the display screen will take on different shapes depending on the function you are executing at the moment, see the following table for an explanation of the FBCB2 cursors and pointers used with the FBCB2 Software.

Table 11. Cursor/Pointer Definitions

DEFINITION	CURSOR/POINTER EXAMPLE
The {Box Cursor} is a black line surrounding the selected radio button label or check box label.	 BOX CURSOR FBCMI_4025_01
The {Text Cursor} takes the shape of an I-beam when in a text field.	 TEXT CURSOR FBCMI_4024_01
A left {Arrow Pointer} is used to select items on the screen. For certain applications a right {Arrow Pointer} is used.	 ARROW POINTER FBCMI_4023_01
A {Pencil Pointer} replaces the {Arrow Pointer} when encircling an area on the map while in the graphics mode.	 PENCIL POINTER FBCMI_4022_01

SOFTWARE FUNCTIONALITY–Continued

Table 11. Cursor/Pointer Definitions–Continued

DEFINITION	CURSOR/POINTER EXAMPLE
A {Sighting Pointer} is displayed whenever the {Arrow Pointer} is on the Situational Awareness map.	 SIGHTING POINTER FBCMI_4021_01
A {Target Pointer} replaces the {Arrow Pointer} when selecting a map while in the World Location mode.	 TARGET POINTER FBCMI_4020_01
A {Wait/Processing Pointer} is displayed if the system is busy responding to a user request.	 WAIT/PROCESSING POINTER FBCMI_4019_01

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:

BASIC OPERATIONS

This work package consists of those FBCB2 software functions that the operator may use the most frequently, in conjunction with the step-by-step procedures identified in the FBCB2 Pre-Mission Software Checklist, see WP 0005 00 FBCB2 PRE-MISSION SOFTWARE CHECKLIST. Frequently-used procedures are accessed from the Ops Main Function Bar, see WP 0004 00 (Control and Indicators). Refer to the embedded Software Users Manual (SUM) for more detailed information. The following table identifies the most common operator tasks.

Table 1. Index of Operator Tasks

TASK CATEGORY	TASK DESCRIPTION(s)	REFER TO
Software Security	FBCB2 Security Controls	WP 0005 00 FBCB2 SECURITY CONTROLS AND READINESS CHECKS
Readiness Checks	Make sure that the AN/UYK-128(V) Computer is ready for use	WP 0005 00 FBCB2 SECURITY CONTROLS AND READINESS CHECKS
Map Settings	Set up or verify Type, Size, Position, and Appearance of the SA map	WP 0005 00 SETTINGS
Filters Settings	Set up or verify the Unit Icons and Geo-Reference Icons to be displayed on the SA map area	WP 0005 00 SETTINGS
Status	Verify the FBCB2 Communications Status interfaces (i.e., gumballs)	WP 0005 00 SETTINGS
Admin Settings	Set up or verify Platform Location, MEDEVAC, Local, and SA Settings	WP 0005 00 SETTINGS

BASIC OPERATIONS–Continued

Table 1. Index of Operator Tasks–Continued

TASK CATEGORY	TASK DESCRIPTION(s)	REFER TO
Applications	Circular Line of Sight (LOS)	WP 0005 00 SETTINGS
	Driver's Display	WP 0005 00 SETTINGS
	Logistics (LOG) Report	WP 0005 00 SETTINGS
	Line Of Sight (LOS)	WP 0005 00 SETTINGS
	Navigation (NAV)	WP 0005 00 SETTINGS
	Periodic Reminders	WP 0005 00 SETTINGS
	Personnel Status Report	WP 0005 00 SETTINGS
	Radio Net Join	WP 0005 00 SETTINGS
	Tailor Supply Point List	WP 0005 00 SETTINGS
	Task Management	WP 0005 00 SETTINGS
Help	Help, Tutorial, Software Manual, Operator's Manual, Programs of Instruction and Software Version	WP 0005 00 SETTINGS
Combat Messages	Send a Combat Message	WP 0005 00 SENDING MESSAGES
	Combat Message Templates	WP 0005 00 SENDING MESSAGES
Long-Form Message Functions	Long-Form Message Templates with their Alert Triggers, Message Types, and Access Levels	WP 0005 00 SENDING MESSAGES
	FBCB2 Message Tab Groups: Send, Create, Edit, Print, Manage, and Sent Queue	WP 0005 00 SENDING MESSAGES

INITIAL ADJUSTMENTS, BEFORE USE, AND SELF-TEST

FBCB2 SECURITY CONTROLS AND READINESS CHECKS

Security Controls. The FBCB2 System employs a number of security features to prevent unauthorized use. Follow the current local Unit SOP or direction from the Security Officer or the FBCB2 Administrator for additional or updated security guidelines and procedures.

Login Menu Option. The Login option is used to activate the valid password security routine for the FBCB2 process. Refer to WP 0005 00 STARTUP/SHUT DOWN for the proper startup/login procedures for the AN/UYK-128(V) Computer.

Security Menu Option. The **Security** option is a **Start** Button menu option that allows an authorized user to access the Security Officer (SO) applications. The security applications are password-protected and are accessible only to the SO.

Re-authentication Challenge. The Security Officer (SO) can challenge a remote user to re-authenticate by sending a Remote Re-authentication Request or a Remote Re-authentication with Lockout message to a specific FBCB2 node on the Tactical Internet. The user responds to the re-authentication by entering a valid unit or individual password.

Message Security Level. The **Message Settings** tab group (located under the **F4 Messages...** button/**Send** tab group/**Messages Options...** button) is used to select the message "Security Level". Outgoing messages are automatically marked at the maximum level of sensitivity for your particular Unit/Role ID.

Destroy FBCB2 Button. The **Destroy FBCB2** button will send a Security message to the Security Officer (SO), cause the computer to transmit a "Flash Mayday" message to pre-selected addresses, reset the Internet Controller (INC) to factory defaults, kill all FBCB2 processes, and overwrite all FBCB2 data and executable files.

Readiness Checks. After a successful power up and password-protected login, the FBCB2 software is ready to perform the many tasks that are available. Before doing any other tasks, the operator should check his/her Ops screen to verify the following conditions:

Date/Time Group. Verify that the displayed DTG is correct. The DTG appears on the Classification/Status Bar in the upper left-hand corner.

Communications Status Indicators. Verify that the Communications Status Indicator gumballs are G (green) or A (amber). A gumball color-coded R (red) or W (white) indicates a problem that must be addressed before proceeding.

PLGR Status Indicator. Verify that the PLGR Status Indicator gumball is G (green) or A (amber). A gumball color-coded R (red) or W (white) indicates a problem that must be addressed before proceeding.

Unit/Role Identification. Verify the correct information on the Unit/Role ID and Platform Location toggle button located on the Ops Function Bar. The role information must match the information on the Crew Assignment Sheet. Each time this button is selected, the label will toggle between your Unit/Role ID and the coordinates of your platform's location.

Auto Center. Select the **Auto Center** button at the top of the Ops Function Bar. The red international No symbol over the button will disappear. The Situational Awareness (SA) map will continue to move until your platform's icon is at the center of the SA display area.

Own Icon. Verify that your platform's icon (i.e., own icon) appears on the Situational Awareness (SA) map. The platform icon is blue with a darker blue border.

Readiness Check Completion. If all the above checks are complete and OK, then the FBCB2 System is ready for the operator to perform any of the varied tasks available to their particular Unit/Role ID.

OPERATING PROCEDURES

SETTINGS

Map Settings. This section describes the Map Settings, which are accessed by selecting the **F1 Maps...**, button on the Ops Function Bar. The **F1 Maps...** function button displays the "Map Control" dialog box. The "Map Control" dialog box is used to choose the type, size, position and appearance of the Situational Awareness (SA) map display. In each of the tab groups, the operator, after making changes, can select those changes as the new default settings by selecting the **Set Defaults** button. After completing this function, the operator can select the **Restore Defaults** button to return the system to the original settings.

Background Tab Group. The **Background** tab group is used to choose the Type, Scale, Zoom magnification, and Appearance of the display. The system defaults to the Compressed ARC Digitized Raster Graphics (CADRG) format, which displays a digital map with contour lines, detailed fabricated features, and labels. The Vector Product Format (VPF) displays primary "man-made" and natural features. The Digital Terrain Elevation Data (DTED) type displays the terrain elevation using color graphics. The Imagery type displays aerial photography.

Grid Tab Group. The **Grid** tab group is used to choose the coordinate type; Military Grid Reference System (MGRS), Latitude/Longitude (Lat/Lon), Degrees Minutes Seconds (DMS) or Universal Transverse Mercator (UTM). Additionally, the

OPERATING PROCEDURES–Continued

SETTINGS–Continued

MGRS accuracy can be set. It has the option to display computer generated gridlines on the Situational Awareness (SA) map, choose the gridline spacing, and change the gridline color.

Center Tab Group. The **Center** tab group allows the user to center the Situational Awareness (SA) map on locations that have been sent or received by JVMF message. The operator can select a point on the map or scroll the map in one of the eight cardinal directions (i.e., North, Northeast, East, Southeast, South, Southwest, West, Northwest). The three sub-tab groups are:

Unit/Platform. The **Unit/Platform** sub-tab group centers on a selected unit or platform. This tab provides a list of Friendly, Observed, Air and Geo-reference locations that are automatically compiled from messages that are sent or received and contain location information (e.g., SALT Report). The operator can choose a particular Unit/Platform location group by selecting the Unit/Platform combo box **down arrow** button. A list of location groups is then displayed. Scroll down the list to find the desired group. Selecting a group will cause all the data from that group to appear in the pane. Select the Unit or Platform from the pane and the selection will be highlighted. Select the **OK** or **Apply** button and the Situational Awareness (SA) map will center on the selection. The **Details...** button shows more details about the selected unit. The information will be displayed in the "Hook" dialog box.

Location. The **Location** sub-tab group provides a listing of available map locations loaded in the system. Select the location and the selection will be highlighted. Select the **OK** or **Apply** button and the Situational Awareness (SA) map display will center on the location chosen by the operator.

Scroll. The **Scroll** sub-tab group displays a selection of direction arrows representing the eight cardinal directions (i.e., North, Northeast, East, Southeast, South, Southwest, West and Northwest). These arrows allow the operator to scroll the Situational Awareness (SA) map in the selected direction. The **Close** and **Help** buttons are the only active buttons in this dialog box. When the operator selects one of the direction arrows, the map will move in the selected direction. Using these arrows will turn off the Auto Center function. The user must re-select the **Auto Center** button to engage this function.

Filters Settings. This section provides detail on the Filters settings, which are accessed by selecting the **F2 Filters...** button on the Ops Function Bar. Filters allow the operator to select the icons displayed on the Situational Awareness (SA) map of the Ops Main Screen. Displaying a minimum amount of information will allow the system to operate faster. The more information an operator chooses to display, the more the system will operate at a slower speed. A balance must be reached between the amount of necessary information to display and the speed at which the AN/UYK-128(V) Computer operates. When the operator has setup the filters differently from the original system defaults, an amber background with Black letters (SET) will be displayed on the Ops Function Bar on the **F2 Filters...** button. This serves as a reminder to the operator that the Situational Awareness (SA) information depicted on the display screen may be different from other FBCB2 computers because the filters function has been customized. The four tab groups in the "Filters" dialog box are:

SA Tab Group. The **SA** tab group offers several different display choices. The operator can choose to display items from the following categories: "Labels" and "Friendly", "Enemy", "Unknown" and "GEOREF" icons.

Collapse/Expand Tab Group. The **Collapse/Expand** tab group contains a listing of the Unit Task Organization (UTO) displayed in a directory tree layout. Each folder represents a unit organization from Brigade to Platoon level. When a folder has a black circle with a diagonal slash superimposed it means that unit has not made a position report and is not displayed on the Situational Awareness (SA) map. When a folder is collapsed (closed) only the unit icon representing the indicated command level will appear on the SA display at approximately center of mass of all subordinate units. When a folder is expanded (opened) the icons representing the subordinate units/platforms will appear on the SA display. Organizational icons will be located on the SA map at the center of mass of all its subordinate units regardless of whether or not the subordinate unit icons are displayed.

Overlays Tab Group. The **Overlays** tab group allows the user to load or unload, display or hide, overlays that have been created and saved in message folders. as well as, to display or hide all related labels.

Obstacle Overlays Tab Group. The **Obstacle Overlays** tab group allows the user to delete obstacle overlay information that has been received and automatically displayed on the Situational Awareness (SA) map from the receipt of Obstacle, Modified Obstacle, or Combined Obstacle Overlay messages. The **Obstacle Overlays** tab group displays all obstacle overlays by originator and Date/Time Group. The operator can load "All" or "None". The operator can update information by selecting the **Refresh** button. Selecting a single or multiple obstacle overlay(s) and the selection(s) will be highlighted. Select the **Delete Selected** button and the selected obstacle overlays will be deleted from the list and from the SA map display. However, the message remains in the FIPR queue.

OPERATING PROCEDURES–Continued

SETTINGS–Continued

Status Button. This section provides detailed information about the Status function, which is accessed by selecting the **F5 Status...** button on the Ops Function Bar. The information displayed in the "Status" dialog box is useful for checking and verifying the status of the FBCB2 equipment and interfaces. This platform-specific information will generally be used by unit maintenance personnel. However, the operator may need to look at the system interfaces to see what equipment is operational. Being familiar with the Status function and its associated tab groups could assist unit maintenance personnel with troubleshooting. The operator may be requested to verify certain platform-specific information displayed in their "Status" dialog box. In some cases, the operators can spot the problem and correct it themselves. The three tab groups in the "Status" dialog box are:

Systems Tab Group. The **Systems** tab group displays the following folders when first opened: "GPS" (i.e., Global Positioning System), and "LOCAL COMM". If your platform is configured to include additional communication equipment (e.g., BCIS, LRAS3, CEMBIO) corresponding folders will be available. Next to each folder is the status condition of that folder. Selecting a folder will open (expand) the contents of that particular folder. Each folder provides an itemized listing of the sub-systems and status of each sub-system interface. Four status conditions can exist for the equipment and its interfaces. These status conditions are:

1. **Go.**This status means that the equipment or interface is operational. The equipment is ready to use.
2. **No Go.** This status means that the equipment or interface is not operational. The equipment is not ready to use. Check the equipment set up. Contact Unit Maintenance, if the problem cannot be easily corrected by the operator (e.g., initialize the equipment item).
3. **Not Tested.** This status means that the equipment or interface has not been queried yet. If this condition persists, then Unit Maintenance should be called.
4. **Degraded.** This status means that the equipment is still operational, but no activity has been detected in the specified time. As soon as any activity shows up on the equipment, the status will change to Go.

SA Tab Group. The **SA** tab group presents information on the status of the platform's associated network, the Broadcast NET, the SA Net Member count, and the Server. An information display panel provides a count of friendly and observed units in the operational area and the average age of each group. The operator selects the radio button for either "NET 1", "NET 2", or "CSMA" (i.e., Carrier-Sense Multiple Access). The system will display the current status for the selection.

General Tab Group. The **General** tab group provides information on Disk utilization. It shows the total disk capacity (size) and available space on the (Hard Disk Drive). While in this function, the operator can select the **Refresh** button at any time, and the system will update the data in the dialog box.

Admin Settings. The AN/UYK-128(V) Computer default settings determine how often the system reports its own position (i.e., own icon) and how friendly, observed and air units will be displayed. When authorized to change the default settings, the operator can access the system settings at the Ops Function Bar by selecting the **F6 Admin...** button. This opens the "Admin" dialog box, which has options that allow the user to customize the following pre-sets: Platform Location, MEDEVAC, Local, and SA Settings. All tab groups in the "Admin" dialog box provide direct access to the **Exit Ops...** button, and the **Destroy FBCB2** button.

Platform Settings. The **Platform Settings** tab group provides the operator with access to the **Location** sub-tab group and the **Misc** (i.e., Miscellaneous) sub-tab group.

Location Tab Group. In the **Location** tab group, the operator can input his/her own position on the Situational Awareness (SA) map display. The operator can also input other information such as Course, Speed and Elevation of his/her own platform. If your GPS initialization fails and/or your GPS is not responding, you may need to enter your own location information for the Military Grid Reference System (MGRS) coordinates.

Misc Tab Group. In the **Misc** tab group, the operator must input the MEDEVAC "Voice Net Frequency" and the "Requestor's Call Sign" for his/her unit. This information will be provided prior to your mission, normally from the current Standard Operating Instructions (SOI).

Local Settings. The **Local Settings** tab group provides the operator with access to the **Display/Message** sub-tab group and the **Audio** sub-tab group.

Display/Message Tab Group. The "Chembio Auto Send" On/Off radio buttons are functional if the AN/UYK-128(V) Computer is hooked up to the Multipurpose Integrated Chemical Agent Detector (MICAD) or the Long-Range Biological Standoff Detection System (LRBSDS). When the MICAD or LRBSDS generates a Free Text, NBC1 or NBC4 message, if the "On" radio button is selected, then the AN/UYK-128(V) Computer will automatically forward the message. If the

OPERATING PROCEDURES–Continued

SETTINGS–Continued

"Off" radio button for the "Chembio Auto Send" is selected, the computer will place the message in the FIPR queue. The "Reminder Dialog" On/Off radio buttons will display the reminder dialog when the "Personal Reminder" is activated. The "Warning Time Interval" can be set by the operator. This time interval is used to set the amount of time the Alert/Warning Marquee will display a message notification before scrolling to the next notification. The "Local Time Zone" can also be selected by the operator. This time zone will then be displayed at the bottom of the Ops Function Bar.

Audio Tab Group. The operator can set the audible alarm to "Tone", "Voice", or "Off" for the "Alerts", "Notices" and "Reminders" categories. In the "Tone" mode, a tone sounds. In the "Voice" mode a voice is actuated. In the "Off" mode, there is no audio. The "Alerts" part is for Warnings and Alerts, the "Notices" part is for a received message that requires an Operator Response (OR) and the "Reminders" part is for the "Personal Reminders" option. The "Voice Volume" slider allows the operator to increase or decrease the volume level. The "Preview Voice" allows the operator to listen to the selected voice message. Select a voice with the **down arrow** button and then select the **Play** button to hear the voice message. The "Mute all" check box, when selected, turns all tone and voice selections off.

SA Settings Tab Group. The **SA Settings** tab group has the following four sub-tab groups: **Own**, **Friendly**, **Observed,** and **Air**. The operator can set different parameters depending on which tab group is selected. Each tab group contains a **Restore Tabs' SA Default Values** button that will restore the default values of that particular tab group.

Own Sub-Tab Group. In the **Own** sub-tab group, the "Time Filter" setting determines how often the system sends a position report for the platform. The Position Report message is used to provide friendly unit location data, outside the automated Situational Awareness (SA) reporting process. The "Motion Filter" setting causes the system to initiate a Position Report when the platform has moved a set distance. Similarly, the "Time Filter" setting causes the system to initiate a Position Report when a set amount of time has passed . If the "Reporting Mode" is set to the "Auto" mode, the platform position is reported automatically. When the radio button is set to the "Manual" mode, the operator must generate the Position Reports. When the radio button is set to the "Off" mode, Position Reports cannot be generated by the FBCB2 System. When the user selects any mode other than the "Auto" mode, a red international No symbol appears on the Unit/Platform Role button on the Ops Function Bar.

Friendly, Observed and Air Sub-Tab Group. In the **Friendly**, **Observed** and **Air** sub-tab groups, the user can change the "Stale", "Old" and "Purge" time thresholds. The user can also restore all Situational Awareness (SA) default values with the selection of a single button.

Stale Setting. The "Stale" time setting determines how long the system will wait without receiving a Situational Awareness (SA) Position Report from another platform before that icon type begins to fade.

Old Settings. The "Old" time setting determines how long the system will wait without receiving a Situational Awareness (SA) Position Report from another platform before it completely erases that icon type from the SA display area.

Purge Settings. The "Purge" time setting determines how long the system will wait without receiving a Situational Awareness (SA) Position Report from another platform before it removes that unit's icon from the system database.

Exit Ops Button. Selecting the **Exit Ops...** button, located under the **F6 Admin...** button on the Ops Main Screen, will start a normal and orderly shut down of the FBCB2 System. All open files are closed, the database is updated and the current session is closed. The software closes the "FBCB2 Display Process" dialog box and returns the operator to the Session Manager Screen. This is the only safe method of exiting from the FBCB2 software. Proper shut down procedures consist of first shutting down the AN/UYK-128(V) Computer, and then the peripheral equipment.

CAUTION

Do not shut down the computer power without first following software shut down procedures. Failure to comply may cause loss of program data.

Destroy FBCB2 Button. Extreme care must be exercised with the **Destroy FBCB2** button. Activating this button will initiate a destruct sequence for both the operator's AN/UYK-128(V) Computer software and the Internet Controller (INC) software. The first event is sending a Flash Mayday message. The operator must have entered an Action Addressee for the Mayday message prior to selecting the **Destroy FBCB2** button. If the operator fails to enter the addressee before the **Destroy FBCB2** button is used, then no message is sent. The user will not receive a notification of the message send failure. The second event is the sequence of software destruction. This will take about 20 minutes. This time is used to overwrite the FBCB2 database files, the FBCB2 executable files, and all user saved information. The third event is that the INC will be reset to the factory

OPERATING PROCEDURES–Continued

SETTINGS–Continued

defaults to prevent access to the Tactical Internet (TI). The operator has 15 seconds to cancel the process once it is initiated. After that, the process starts to destroy the file structure. The **Now** button is used to bypass the countdown and initiate the destruct sequence immediately.

NOTE

Selecting the Destroy FBCB2 button will cause a Flash Mayday message to be sent, Internet Controller to reset to factory defaults, overwrite the Hard Disk Drive FBCB2 operational database and FBCB2 executable files.

NOTE

Ensure that operators enter an Action Addressee for the Mayday message prior to selecting the **Destroy FBCB2** button. Failure to comply will result in the Mayday not being sent. The operator's situation will not be known by higher echelon command. The operator will receive no notification of the failure to send the Mayday message.

Apps Functions. This section provides an overview of the Apps functions, which are accessed by selecting the **F7 Apps...** button on the Ops Function Bar. Although there are two different tab groups in the "Apps" dialog box, only the **FBCB2** tab group is currently user-functional. In the **FBCB2** tab group, the operator has access to several different functional tasks, which are discussed in the following text. For more information, refer to the embedded Software User's Manual (SUM).

Circular Line of Sight. The Circular Line of Sight process allows the user to analyze a 360 degree line of sight from any point on the map. The user can control the analysis by entering the desired radius of the circle, the "Spacing" (distance between center points along a route), and the "Vertical Offset" (height from the ground to the desired eye level at the circle center) in the appropriate text box.

Driver's Display. The Driver's Display function allows the vehicle driver's display to be viewed on the FBCB2 Situational Awareness (SA) display. The information displayed is dependent upon the type of vehicle/platform, and the user selections made in the Navigation function. The Driver's Display function is most quickly accessed by selecting the **NAV** button located at the top of the Ops Function Bar.

NOTE

The FBCB2 software does not restrict any user at any echelon from creating and sending a LOG Report. Therefore a user has the capability to choose items from the CTIL to be displayed on their own system. Each user has, in addition, the capability to modify the CTIL and send the CTIL message to other platforms. The receiving platform places the message in the FIPR queue just like any other message. After opening the message the receiver has the option to **Apply** the incoming CTIL changes. If the receiver applies the CTIL changes there is no software process, i.e., "UNDO" button that will restore their original CTIL. The only way they can recoup an authorized CTIL is to request the S-4 send the official CTIL and, upon receipt, apply it and overwrite the existing CTIL. All users should ensure that the proper authority sends a CTIL message (by checking the sender's address) prior to applying the CTIL changes to their system.

Log Report. From the **FBCB2** tab group, highlight the LOG (i.e., Logistics) Report option in the **FBCB2** tab group and select the **Execute** button. This opens the "LOG Report" dialog box. From here, the operator can report the unit combat essential readiness status and supply readiness status, which consists of reporting on-hand quantities of Commander's Tracked Items List (CTIL). The higher echelon operator can add comments to the Logistics message by selecting the **Rollup Comments**. Individual units can add comments to their CTILs by selecting the **Comments** button. The "LOG Report" buttons are:

Rollup Button. Selecting this button allows the operator to roll up the CTILs for the unit (e.g., + commander can roll up the CTILs from individual platforms under his/her command).

Select All Button. Selecting this button allows the operator to select all items.

OPERATING PROCEDURES–Continued

SETTINGS–Continued

Deselect All Button. Selecting this button allows the operator to deselect all items.

Redisplay Button. Selecting this button allows the operator to update the "Logistics Message" dialog box. Any messages received regarding Logistics are held in the queue. Use the **Redisplay** button to get these messages and add them to the current session.

Tailor CTILs Button. Selecting this button allows the operator to tailor the CTIL for his/her battalion. This button opens another dialog box that contains the following additional buttons.
Selecting the **Message Options Button** allows the operator to change transmission settings for this single message.
Selecting the **Send CTILs Button** allows the operator to send the CTILs to subordinate units.
Selecting **Deselect All Button** allows the operator to deselect all items.

Line of Sight. The Line of Sight (LOS) process is a tool that allows the user to draw a line on the map from point Start (S) to point End (E) and view a graphic representation of the topography between the two points. With the **Profile (ON)** button selected, Elevation is shown on the y-axis; Distance; shown on the x-axis; S for Start point, E for End point, the topography (rise or fall of the land surface) between the two labeled-points and Range/Bearing from point S to point E.

Navigation. The "Navigation" dialog box contains software controls to select, Create, Manage, Analyze, and Reverse direction of a Route of March. The operator can control the navigation mode (i.e., Steer To/Compass) and toggle on/off the "Rollover" Mode and the Driver's Display. When the "Rollover" option is selected the Drivers Display will indicate the "Range" to the next "Waypoint" and the Estimated Time of Arrival (ETA) to the next "Waypoint". The system will rollover to the next waypoint along a route of march when the vehicle is within 50 meters of the targeted waypoint. When the **Compass** option is selected the Driver's Display shows the vehicle compass heading. When the **Steer To** option is selected the Driver's Display shows the bearing to the next waypoint. The **Steer To** option will display up to 3 arrowheads on either side of the bearing. Each arrowhead represents 10 degrees of vehicle heading correction required to center the vehicle on the displayed bearing, e.g., (Drivers Display), 30 >> means a 20 degree right turn is required to bring the vehicle to a course heading of 30 degrees. > 180 means a 10 degree left turn is required to bring the vehicle to a course heading of 180 degrees.

Route Tab Group. Selecting this tab group allows the operator to create routes, view waypoints and activate or deactivate the "Rollover" Mode on the Driver's Display. The associated buttons are described below.

Steer To Button. When the **Steer To** button is selected the Driver's Display shows the bearing to the next Waypoint.

Compass Button. When the **Compass** button is selected the Driver's Display shows the platform compass heading.

Route ID [Down Arrow] Button. When routes have been created, selecting this button will allow the operator to select a created route from the list. There are four buttons associated with this area of the "Navigation" dialog box. These are described below.

Create Button. Selecting this button allows the operator to create a new Route to a particular destination. First, a prompt dialog box opens to enter the new route name. Then the named route is entered into the database. Use the {Arrow Pointer} to create the legs of the route.

Delete Button. Selecting this button allows the operator to delete an existing Route from the database.

Edit Button. Selecting this button allows the operator to edit a current Route. In both the "Create" and "Edit Route" dialog boxes, the operator can use the {Arrow Pointer} to create the route.

Named Button. Another method involves using the **Named...** button. This button opens a dialog box showing all the named locations. Select a location and the name will appear in the "Location" text box.

Location Text Box. Use the "Location" text box to highlight a location on the displayed route. Then select **Delete** to remove the leg or **Cancel** to cancel the edit action.

Reverse Button. Selecting this button allows the operator to reverse the selected Route. This can be used to plot the Waypoints back to the operator's origin.

Waypoint Left and Right Arrows. Selecting one of these arrows causes the system to scroll through the list of waypoints for the selected Route. The waypoints are displayed as grid coordinates in the "Location" text box.

Rollover Mode. Selecting this check box will activate the Rollover mode of the Driver's Display. This mode indicates the range and the Estimated Time of Arrival (ETA) to the next Waypoint. The system will rollover to the next Waypoint along a Route of March when the vehicle is within 50 meters of the targeted Waypoint.

OPERATING PROCEDURES–Continued

SETTINGS–Continued

Driver's Display on Button. Selecting this button will activate the "Driver's Display" dialog box and causes the system to display it on the Ops Main Screen.

Single Point Tab Group. Selecting this tab group allows the operator to fill in a single location, a named location or activate/deactivate the Driver's Display. Most of the buttons are the same as for the **Route** tab group. Only the different buttons are described below.

Fill Location Button. Selecting this button allows the operator to fill the location with a point from the map display. The coordinates are displayed in the "Location" text box.

Named Location Button. Selecting this button displays a list of previously saved map locations.

Laser Range Finder (LRF) Button. Selecting this button allows the operator to fill a location with a LRF sighting.

Periodic Reminders. The Periodic Reminders process allows the user to create and store message reminders that will, at a user-determined date and time, display a reminder dialog box with a user-created text message. There is an option to trigger an audio alert when the reminder is displayed. All times are Greenwich Mean Time (GMT), i.e., Zulu Time. The current Zulu time and the "Reminder Text" can be reset by selecting the **Defaults** button. The **Once** tab group allows the user to create and store message reminders that will display a reminder dialog box with a user-created text message once at the date and time selected. The **Daily, Weekly, and Monthly** tab groups allow the user to create and store message reminders that will display a reminder dialog box with a user-created text message daily/weekly/monthly at the specified time. The **Floating** tab group allows the user to create and store message reminders that will, at a user-determined date and time, display a reminder dialog box with a user-created text message. There is an option to trigger an audio alert when a periodic reminder is displayed.

- **List Button.** Selecting this button opens the "Reminder List" dialog box. The dialog box displays all the Periodic Reminders that the user has created. This dialog box allows the user to perform various tasks on created reminders. Select a specific reminder to activate the grayed out buttons in this dialog box.
- **Defaults Button.** Selecting this button restores the default values for the selected tab group. There are only two defaults. One is the "Reminder Time", where the user can reset the time to the current system time. The second default is the "Reminder Text", where each tab group has a unique one-line text message in this text box. The user can overwrite the text message. If the user wants the original text back, he/she can select the **Default** button to bring back the default text line.

Personnel Status Report. Subordinate units submit the Personnel Status Report to higher headquarters to report the condition of individuals necessary to accomplish the assigned mission.

Radio Net Join. The Radio Net Join function allows the user to reconfigure the communication subsystems on their own platform. A Radio Net Join will automatically reconfigure the FBCB2 database, INC router, SINCGARS-ASIP and EPLRS. Radio Net Join is used in conjunction with the Hasty Reorganization. This dialog box allows the operators to join the new nets associated with their move to the new unit. The dialog box has two separate areas, one is the SINCGARS Hopset and the second is the EPLRS configuration. For both radios, the former Current assignment is displayed. A "New" combo box with a **down arrow** button for selecting the new assigned SINCGARS Hopset is available. This action opens the "SINCGARS Agent Table" dialog box. Select the new Hopset. The Hopset will appear in the "New" combo box. A "Change" combo box with a **down arrow** button for selecting the new assigned EPLRS configuration is also available for those platforms with EPLRS capability.

Tailor Supply Point List. The "Tailor Supply Point List" dialog box allows the user to tailor the Commander's Tracked Items List (CTIL) and Basic Required Items List (BRIL) and to display only those items that are applicable to a Unit's specific requirements. The user can select items to be displayed in the **Rollup** and **Single** tab groups.

Task Management. Automated Logistics Task Management provides the capability to track and manage logistics tasks on the battlefield using an automated management system. Logistics Task Order (LTO), Status or Synchronization messages created from the "Task Management" dialog box, will auto-fill fields containing data that has already been established. The **View Task Log** button displays the message log for a selected task. The Figure 1 is an example of how a logistic task message traffic flow works.

OPERATING PROCEDURES–Continued

SETTINGS–Continued

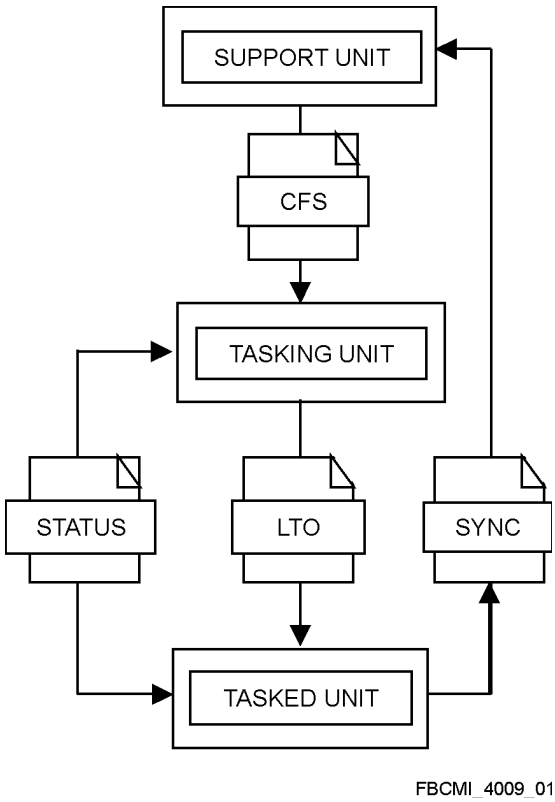


Figure 1 **Logistics Task Management Flow Diagram**

Task Management Initiation. An FBCB2 operator (i.e., Supported Unit) completes and transmits a Call For Support (CFS) message to his Unit Commander. The Unit Commander (i.e., Tasking Unit) receives the CFS message and selects it from the FIPR queue. The Commander's AN/UYK-128(V) Computer will display the "Task Management" dialog box. The Commander completes and transmits a Logistics Task Order (LTO) to the appropriate maintenance unit. The maintenance unit (i.e., Tasked Unit) receives the LTO message and selects it from the FIPR queue. The maintenance unit AN/UYK-128(V) Computer will display the "Task Management" dialog box. The Maintenance Officer completes and transmits a Task Status message to the requesting Unit Commander and the FBCB2 operator. Subsequent Task Status messages may be sent to notify the Supported Unit of changes in the status. The maintenance unit completes and transmits a Synchronization (Sync) message to the Supported Unit to coordinate support time and location.

Task Management Tab Groups. The "Task Management Summary" dialog box provides the current status of each logistics task from start to completion. There are tab groups for viewing the message headers for Logistics Task Orders (LTOs) in Progress, Call For Support (CFS) Received and LTOs Completed. The dialog box contains function buttons, that allow an operator to create and transmit LTO, Task Status and Task Synchronization messages.

LTOs in Progress Tab Group. Selecting this tab group allows the operator to view all current LTOs and associated information. The buttons at the bottom of the dialog box do a number of functions. Selecting the **Create LOG Task Order** button will open the "Create LOG Task Order" dialog box. Selecting the **Create Task Status** button allows the creation of a task status. Selecting the **Create Task Sync** button opens the "Create Task Management - Synchronization" dialog box. Selecting the **View Task Log** button opens the "Task Log" dialog box. Select a message by highlighting it. Select the **View Message** button to view the details of the message. Select the **Update Log** button to update the "Task Log" dialog box with any new messages. Selecting the **Show All Columns** button will compress the dialog box contents to show more of the columns associated with the LTO. Selecting the **Refresh Tasks** button will update the current dialog box with any new information that has been received since the dialog box was originally opened. Selecting the **Delete Task** button will delete a selected (highlighted) task.

OPERATING PROCEDURES–Continued

SETTINGS–Continued

CFSs Received Tab Group. Selecting this tab group allows the operator to view all CFSs that have been received.

LTOs Completed Tab Group. Selecting this tab group allows the operator to view all the LTOs that have been completed.

On-Line Help. The Help option menus may be accessed from the **Start** button in the Task Bar, which is located at the bottom of the screen and is visible at all times while the FBCB2 software is operational. The Help function my also be accessed by selecting the **Help** button located at the bottom of any of the dialog boxes used to display information throughout the FBCB2 software.

Levels of Help. The FBCB2 software provides three types of help: Balloon Help, Context-Sensitive Help and an embedded Software User's Manual (SUM). The functionality of Balloon Help, Context-Sensitive Help, and the FBCB2 Software Users Manual (SUM) is discussed below.

Balloon Help. Balloon Help is designed to identify the function of an unlabeled object. The Balloon Help text will pop-up on the screen when the cursor is on top of an object that is not self explanatory and disappear when the cursor is moved off the object.

Context Sensitive Help. Context-Sensitive Help is designed to provide rapid access to information about a particular function. To access Context-Sensitive Help select the **Help** button at the bottom of the dialog box that is in use and the system opens the "Help" dialog box. This dialog box contains a brief explanation of the function. If more assistance is required, select the **More** button. This button opens the embedded Software User's Manual (SUM) for the specific topic. Select the **Close** button to return to the dialog box from which the **Help** button was pressed. Scrolling to the bottom of the dialog box shows related topics. The operator can view these by selecting one and another SUM page is opened.

Software Manual. The embedded Software Users Manual (SUM) is designed to provide "nice to know" detailed information on FBCB2 software operation. The SUM may be accessed by first selecting the **Start** button in the Task Bar, then by selecting "Help" and "Software Users Manual". The operator navigates through the embedded SUM through the use of three major buttons: **Contents**, **Index** and **Acronyms**. The functionality of these three important buttons is described below.

Contents Button. Selecting the **Contents** button allows the operator to scroll through an alphabetical listing of all help topics available. All the individual terms in the list of contents are in blue. This means they are a hyperlink. The operator can select any term for more information. When the operator selects the term, the system moves to the "Help" dialog box that describes that term.

Index Button. The **Index** button brings up a dialog box with the letters of the alphabet on it. The operator selects one of the letters and the dialog box changes. The dialog box shows the FBCB2 software terms that start with that letter. The operator can scroll down the list until he/she finds the term that he/she is looking for. Each screen has the same three buttons at the top, (i.e., **Contents**, **Index** and **Acronyms**).

Acronyms Button. Selecting this button from any "Help" dialog box opens the Acronyms list for FBCB2 terms. The acronym list is in alphabetical order. The operator scrolls down the list to find the term he/she is looking for. When the operator is finished with this dialog box, he/she can select the **Back** button or the **Close** button. The **Back** button causes the system to move to the immediate previous dialog box from which this dialog box was opened. The **Close** button closes the "Help" dialog box and the system returns to the Ops Main Screen.

Embedded Tutorial. For access to the embedded Tutorial, select the **Start** button in the Task Bar, then select the "Tutorial" menu option. The embedded Tutorial provides tactical scenarios that require operators to perform specific tasks in much the same way as the real system. Simulations are "lock step" and use descriptive tags to guide the operator through each task, while providing the correct answers. The Tutorial supplements the FBCB2 New Equipment Training (NET) and helps trained graduates maintain their FBCB2 software proficiency

Operator's Manual. This menu option provides the user with quick access to a soft copy of the FBCB2 Operator's Manual in an Interactive Electronic Technical Manual (IETM) format.

Programs of Instruction. The POIs option allows the user to view the slides used in the Core Program of Instruction (POI).

Software Version. The "Software Version" function contains version information on the software, database schema, Variable Message Format (VMF)/Technical Interface Design Plan (TIDP) Messages, Message Headers, and UNIX Pros Parser as well as System Classification, User Classification and Patches installation dates for the system.

OPERATING PROCEDURES

SENDING MESSAGES

Send a Combat Message. Combat messages can be accessed three different ways. One way is by selecting the **F3 Combat Msgs...** button on the Ops Function Bar. The second way is by pressing the **Alt F1** button on the Display Unit (DU) 8-Button Bezel Keypad configuration. The third way is by using the left **Alt** key and the **F1** key on the Keyboard Unit (KU). Choosing a Combat messages tab group (i.e., SALT, MEDEVAC, NBC 1, Fire Mission, Check Fire All or SITREP) opens the corresponding Combat Messages template.

Table 2. How To Send A Combat Message (Typical)

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Setup or verify the Default Message Addressing. (See Table 37)	The appropriate Default Message Addressing is displayed in the "Create" tab group.
2	Setup or verify the addresses. (See Table 38)	The appropriate addresses are displayed in the Action List and/or Info List.
3	Select the **F3 Combat Msgs...** button.	The "Combat Messages" dialog box is displayed.
4	Select the **SALT** tab.	The "SALT" tab group displayed.
5	Select the **Equipment 1: (Target) down arrow**.	The "Equipment 1: (Target)" option list is displayed.
6	Select the equipment from the option list.	The equipment selected is highlighted and displayed in the "Equipment 1: (Target)" text box.
7	Select "+" or "-" spinner dials to select the quantity.	The number is displayed in the adjacent text box.
8	Repeat steps 5 through 7 for as many as two (2) additional equipment entries, **Equipment 2:** and **Equipment 3:**, if applicable.	The number(s) will be displayed in the adjacent text box(es).
9	Select the **Activity: down arrow**.	The "Activity" option list is displayed.
10	Select an activity from the option list.	The activity selected is highlighted and displayed in the "Activity" text box.
NOTE To enter a grid location perform steps 11 & 12, to enter a Lased grid location perform step 13, and then perform remaining steps.		
11	To enter a grid location, select the **Map** button.	The "Combat Messages" dialog box closes and the Situational Awareness (SA) map is displayed.
12	Select a point on the SA map.	The "Combat Messages" dialog box opens and "Location:" information is displayed.
13	To enter a lased grid location, select **LRF** button.	The last location lased is displayed.
14	Verify that the correct information is displayed in the "DTG:" text box.	a. If correct DTG is displayed, go directly to step 15. b. If wrong DTG info is displayed, select the **DTG** button and enter the correct information.
15	Select the **Speed: down arrow**.	The "Speed" option list is displayed.
16	Select speed from the option list.	The speed selected is highlighted and displayed in the "Speed" text box.
17	Select the **Course: down arrow**.	The "Course" option list is displayed.

OPERATING PROCEDURES–Continued

SENDING MESSAGES–Continued

Table 2. How To Send A Combat Message (Typical)–Continued

STEP	OPERATOR ACTION	INDICATION or CONDITION
18	Select course from the option list.	The course selected is highlighted and displayed in the "Course" text box.
NOTE Steps 19 through 21 are used for Situation/Activity/Location/Time (SALT) Combat Messages that need Call For Fire (CFF) support. If CFF support is not requested, proceed directly to step 22.		
19	Select the "CFF Msg" check box.	A check mark is displayed in the "CFF Msg" check box and the "Method of Engagement" **down arrow** is activated.
NOTE The "CFF Msg" check box must be selected before the "Method of Engagement" **down arrow** is activated. Otherwise, the "Method of Engagement" option list will remain deselected and unavailable to the operator.		
20	Select the **Method of Engagement: down arrow**.	The "Method of Engagement" option list is displayed.
21	Select the method of engagement from the option list.	The method of engagement is highlighted and displayed in the "Method of Engagement" text box.
22	Select the **Save** button.	Message "Saved" information is displayed (e.g., "Message saved to file Spot_14012254ZMAY2002").
23	Select the **Send** button.	Message "Send" information is displayed (e.g., "Message sent at 140125ZMAY2002").
NOTE A Geo-Reference Icon will be displayed on the Situational Awareness (SA) map as the direct result of sending this type of Combat Message.		
24	Select the **Close** button.	The "Combat Messages" dialog box closes.

Combat Message Templates. The following sections briefly describe the functionality of the twelve (12) different Combat Message templates currently provided to the user by the FBCB2 software. For more detailed information and step-by-step instructions, refer to the FBCB2 Software User's Manual (SUM).

SALT Tab Group. Subordinate units use the Situation/Activity/Location/Time (SALT) message to provide combat intelligence information on enemy units to higher echelons. The SALT message is used to report essential information covering events or conditions that may have an immediate and significant effect on current planning and operations. It is used by friendly forward observers, scouts, or reconnaissance elements for accelerated reporting of essential elements of enemy activity. When the report is transmitted, the system will automatically display an enemy icon at the reported location on the Situational Awareness (SA) map. The operator can initiate a Call For Fire (CFF) message from within this template.

MEDEVAC Tab Group. The Medical Evacuation (MEDEVAC) message is used to request ground or aircraft support to evacuate friendly and/or enemy casualties. If the "Requestor's Call Sign" and the "Voice Net Frequency" are not filled in beforehand, the user will not be able to send a MEDEVAC Combat Message. Refer to Table 40 for the proper step-by-step procedures.

OPERATING PROCEDURES–Continued

SENDING MESSAGES–Continued

NBC 1 Tab Group. The Nuclear Biological Chemical 1 (NBC 1) message is used to transmit observer's basic data on a single NBC attack. Transmission of an NBC1 message will automatically create a geo-reference location on the Situational Awareness (SA) map.

Fire Mission Tab Group. The **Fire Mission** tab group contains a grouping of several Combat Message templates. These templates are all grouped together to provide easy access for all messages related to a Fire Mission. The message types are Call For Fire (CFF), Subsequent Adjust, Check Fire, On Call Fire Command (Cmd) and End Of Mission (EOM). This tab group also contains a **Summary** tab group, which lists all Fire Missions received along with their current status.

Summary Tab Group. The **Summary** tab displays a list of all Fire Missions received along with their current status. Additional fire support can be accessed from the **Summary** tab group after a Call For Fire (CFF) message has been sent and a Message To Observer (MTO) has been received. The **Subsequent Adjust**, **Check Fire**, **On Call Fire Cmd**, and **EOM** tab groups will not be active (i.e., cannot be selected) until after an MTO has been received by the FBCB2 System.

CFF Tab Group. The Call for Fire (CFF) message is used to request, coordinate, and assign indirect fire support assets. The CFF message is used by an element of the friendly force to request indirect fire support from supporting and/or adjacent fire support units.

NOTE

The Advanced Field Artillery Tactical Data System (AFATDS) accepts data for a single target. Additional target information included in the same Call For Fire (CFF) message is discarded by AFATDS.

Subsequent Adjust Tab Group. The Subsequent Adjust message is used to adjust fall of shot against a target area, a destruction mission, or for a fire registration mission.

Check Fire Tab Group. The Check Fire message is used by friendly elements to order a Check Fire on all targets or specific targets by target number or fire unit.

On Call Fire Cmd Tab Group. The On Call Fire Cmd message is used by friendly force elements to direct execution of an On-Call Fire plan target or to direct firing of a mission designated as "at my command".

EOM Tab Group. The EOM message is used to direct an End of Mission processing of a fire mission selected from the **Summary** tab group and to provide target surveillance and to provide fire mission refinement data.

Check Fire All Tab Group. The "Check Fire All" message is used by friendly elements to order a Check Fire or cancel a Check Fire on all active Fire Missions in the **Summary** tab group.

SITREP Tab Group. The Situation Report (SITREP) message is submitted by subordinate units to their higher headquarters and adjacent units (as necessary) to report and define the tactical situation and unit status. The combat messages **SITREP** tab group displays a color-coded graphical representation of your own situation (i.e., **Self** tab group) and the situation of subordinate units and platforms (i.e., **Unit** tab group). The color designations and meaning are as follows:

B (i.e., Black) = Not Mission Capable.
R (i.e., Red) = Marginally Mission Capable with major deficiencies.
A (i.e., Amber) = Mission Capable with only minor deficiencies.
G (i.e., Green) = Full strength.
W (i.e., White) = No report received.

Long Form Message Templates. Message templates can be accessed from the **F4 Messages...** button on the Ops Function Bar. This button opens the "Messages" dialog box to provide the user with access to the FBCB2 messaging functions. Messages are designed to be unit/role-specific. Therefore, particular units/roles will not have access to all messages; only those messages directly applicable will be available.

Templates can be selected from four different types: Orders/Requests, Fires/Alerts, Reports and Overlays. Each of these types has several specific templates from which to choose. The following table lists the message templates that are available. All FBCB2 long-form message names appear in the first column and are sorted alphabetically. When a particular message is received an alert may or may not sound. This information is provided in the second column. The category of the message (Overlays, Reports, Fires/Alerts, Orders/Requests or All) is defined in the third column. The access level is defined in the fourth column. As noted in the table, not all messages are available to all users. The level for usage is for the lowest level.

OPERATING PROCEDURES–Continued

SENDING MESSAGES–Continued

Table 3. Long-Form Message Templates

MESSAGE NAME	ALERT TRIGGER	MSG TYPE	ACCESS LEVEL
Air Space Coordination Overlay	No	Overlays	Platform
Airborne Artillery FCR	No	Hide	Platform
Airborne Fire Msn	No	Fires/Alerts	Platform
Bridge Report	No	Reports	Platform
Call for Fire	No	Fires/Alerts	Platform
Check Fire	No	Fires/Alerts	Platform
Chemical Downwind Report	Yes	Reports	CO/BTRY/TRP
Combat Service Support Overlay	No	Overlays	Platform
Combined Obstacle Overlay	No	Overlays	Platform
Contact Report	No	Reports	Platform
CTIL Action	No	Hide	BN/SQD/RGT
Current Operations Overlay	No	Overlays	Platform
Effective Downwind Message	No	Reports	CO/BTRY/TRP
End of Mission & Surveillance	No	Fires/Alerts	Platform
Enemy Overlay	No	Overlays	Platform
Engagement Report	No	Reports	Platform
Field Orders	No	Hide	Platoon
Fire Plan Overlay	No	Overlays	Platform
Fire Support Coordination Measures	No	Fires/Alerts	Platform
Fire Support Overlay	No	Overlays	Platform
Fragmentary Order	No	Orders/Requests	Platoon
Free Text Message	No	All	Platform
Future Operations Overlay	No	Overlays	Platform
Higher Echelon Ops1 Overlay	No	Overlays	Platform
Higher Echelon Ops2 Overlay	No	Overlays	Platform
Initial Airborne Artillery FCR	No	Hide	Platform
Land Minefield Laying	No	Reports	Platform

OPERATING PROCEDURES–Continued

SENDING MESSAGES–Continued

Table 3. Long-Form Message Templates–Continued

MESSAGE NAME	ALERT TRIGGER	MSG TYPE	ACCESS LEVEL
Land Route Report	No	Reports	Platform
LOG Call For Support	No	Orders/Requests	Platform
LOG Task Management	No	Orders/Requests	Platform
LOG Task Order	No	Hide	Platoon
LOG Task Status	No	Hide	Platform
LOG Task Sync	No	Hide	Platform
Logistics Report	No	Reports	Platform
Medical Situation Report	No	Reports	Platform
MEDEVAC Request	No	Orders/Requests	Platform
Message to Observer	No	Read Only	Platform
Modified Obstacle Overlay	No	Overlays	Platform
MOPP Alert	Yes	Fires/Alerts	Platform
NBC 1 Report	Yes	Reports	Platform
NBC 3 Report	Yes	Reports	CO/BTRY/TRP
NBC 4 Report	Yes	Read Only	Platform
Observer Mission Update	No	Read Only	Platform
Observer Readiness Report	No	Fires/Alerts	Platform
Obstacle Overlay	No	Overlays	Platform
Obstacle Report	No	Reports	Platform
On Call Fire Cmd	No	Fires/Alerts	Platform
Operations Order/Plan	No	Orders/Requests	CO/BTRY/TRP
Operations Overlay	No	Overlays	Platform
Overlay	No	Hide	Platform
Personnel Report	No	Reports	Platoon
Planned Operation Overlay	No	Overlays	Platform
Position Report	No	Reports	Platform
Range Card Overlay	No	Overlays	Platform
REDCON Alert	Yes	Fires/Alerts	Platform
Route Overlay	No	Overlays	Platform
Sector Identification Overlay	No	Overlays	Platform
Situation Report	No	Reports	Platform
Spot Report	No	Reports	Platform

OPERATING PROCEDURES–Continued

SENDING MESSAGES–Continued

Table 3. Long-Form Message Templates–Continued

MESSAGE NAME	ALERT TRIGGER	MSG TYPE	ACCESS LEVEL
Strike Warning	Yes	Fires/Alerts	CO/BTRY/TRP
Subsequent Adjust	No	Fires/Alerts	Platform
Supply Point Status	No	Reports	BN/SQD/RGT
Target Overlay	No	Overlays	Platform
Threat Warning	Yes	Fires/Alerts	CO/BTRY/TRP
Traffic Control Overlay	No	Overlays	Platform
Unit Reference Query	No	Orders/Requests	Platform
Warning Order	No	Orders/Requests	Platoon

FBCB2 Message Tab Groups. The "Messages" dialog box contains the following tab groups: **Send**, **Create**, **Edit**, **Print**, **Manage**, and **Sent Queue**. The messaging functionality that each tab group currently provides to the operator is described below. For step-by-step instructions, refer to the embedded FBCB2 Software User's Manual (SUM).

Send Tab. The **Send** tab group is used to transmit a previously saved message, change the transmission settings for a message and display the text of a message. An overview of **Send** tab functionality is presented below. For step-by-step instructions, refer to the embedded FBCB2 Software User's Manual (SUM).

Message Addressing Button. The **Message Addressing...** button provides access to the functions that will change the transmission settings for the selected message.

Message Settings Tab Group. The **Message Settings** tab group is used to select the message "Precedence" and "Acknowledge" functions, as well as to set the "Security Level" and the "Perishability DTG:". Precedence levels include the following five (5) options: "Emergency Cmd", "Flash", "Immediate", "Priority", and "Routine". The three (3) types of FBCB2 message acknowledgements are: "MA" (i.e., Machine Acknowledge), "OA" (i.e., Operator Acknowledge), and "OR" (i.e., Operator Response). The "Security Level" group displays the security classification levels available to assign to outgoing messages (i.e., "Secret" and "Unclassified"). The "Perishability DTG:" option is used to set a date that the outbound message will become obsolete. Refer to the Software User's Manual (SUM) for more detailed information.

Addresses Tab Group. The **Addresses** tab group is used to add/delete addressees to the message Action Addressee list and/or the Information (Info) Addressee list.

Display Button. The **Display** button is used to view the contents of the selected message.

Create Tab. The **Create** tab group allows the operator to create a new message, set the Default Message Options for a message sub-type, edit address groups, transmit and save the completed message. An overview of **Create** tab functionality is presented below. For step-by-step instructions, refer to the embedded FBCB2 Software User's Manual (SUM).

Orders/Requests. The "Orders/Requests" type message group contains Joint Variable Message Format (JVMF) message templates. Access to create a message is dependent upon your Role/ID. Table 3 lists Orders/Requests type messages, their ability to activate an audio/visual alert at the receivers platform and the access level for message creation.

Fires/Alerts. The "Fires/Alerts" type message group contains Joint Variable Message Format (JVMF) message templates. Access to create a message is dependent upon your Role/ID. Table 3 lists Fires/Alerts type messages, their ability to activate an audio/visual alert at the receiver's platform and the access level for message creation.

Reports. The "Reports" type message group contains Joint Variable Message Format (JVMF) message templates. Access to create a message is dependent upon your Role/ID. Table 3 lists Reports type messages, their ability to activate an audio/visual alert at the receivers platform and the access level for message creation.

Overlays. An Overlay is a group of graphical objects displayed over the map on the Situational Awareness (SA) map area. The image displayed contains a combination of four display layers. The operator may cause any combination of these layers to be displayed on the SA map or choose to have none of them displayed. These messages are displayed on the screen in a preview mode, but not actually loaded. Overlay messages cannot be edited or toggled on/off until the message is saved to a folder and then loaded. "Current Overlay" is a phrase used to describe the overlay that is in use for the purpose

OPERATING PROCEDURES–Continued

SENDING MESSAGES–Continued

of creating or editing. Only one overlay at a time can be designated as the current overlay. Option buttons allow you to set the Operation Time and Operation Identification number of the selected overlay. The "Overlays" type message group contains Joint Variable Message Format (JVMF) message templates. Access to create a message is dependent upon your Role/ID. Table 3 lists Overlays type messages, their ability to activate an audio/visual alert at the receivers platform and the access level for message creation.

Edit Tab. The Edit function is used to make changes to any of the Text, Overlay or Image/Video message files that have been saved in folders. The Message Options can be modified for any message that has been saved to a folder. The **Quick Send Messages...** button is used to assign messages to the Quick Send buttons. An overview of **Edit** tab functionality is presented below. For step-by-step instructions, refer to the embedded FBCB2 Software User's Manual (SUM).

Message Addressing Button. The **Message Addressing...** button provides access to the functions that are used to change the transmission settings for a particular message.

Quick Send Messages Button. The **Quick Send Messages...** button displays the "Quick Send Button Setup" dialog box. You determine the label you want displayed on the button face. You also determine the text displayed in the balloon help when you pass the cursor over the button. You can view the contents of the message prior to assigning the message to a button.

Edit Images/Video. FBCB2 software is used to manipulate a graphic image or video file. This feature is not currently available.

Edit Overlays. The **Edit** tab group contains options to edit any overlay message that has been saved to a folder. The attributes that are not applicable to the selected object will be grayed-out.

Print Tab. The FBCB2 S/W supports the capability to print password files in a readable format but is only enabled when a printer is configured.

Manage Tab. The **Manage** tab group is used to create folders, rename messages, move messages between folders and delete messages. For step-by-step instructions, refer to the embedded FBCB2 Software User's Manual (SUM).

Sent Queue Tab. The **Sent Queue** tab group is used to view the header information of messages sent from the user's platform. The user can view additional message header detail and view any operator responses receive for any of the messages listed in the tab group. The message headers can be sorted by Message Type, Time of Transmission, Acknowledgment or Send Status. For step-by-step instructions, refer to the embedded FBCB2 Software User's Manual (SUM).

OPERATING PROCEDURES

PERIPHERAL EQUIPMENT SET UP

Peripheral Equipment Set Up includes the tasks that the operator performs prior to beginning normal operations. These tasks include peripheral equipment set up. The operator should check all connecting interfaces between the AN/UYK-128(V) Computer and the peripheral hardware, such as the MILSATCOM, PLGR, EPLRS, INC and SINCGARS ASIP.

Interface Equipment Interconnect Diagram. The following figure displays the generic interconnect diagram. This generic configuration shows the standard interconnections along with some optional equipment connections. Refer to the applicable platform manual for interconnect details.

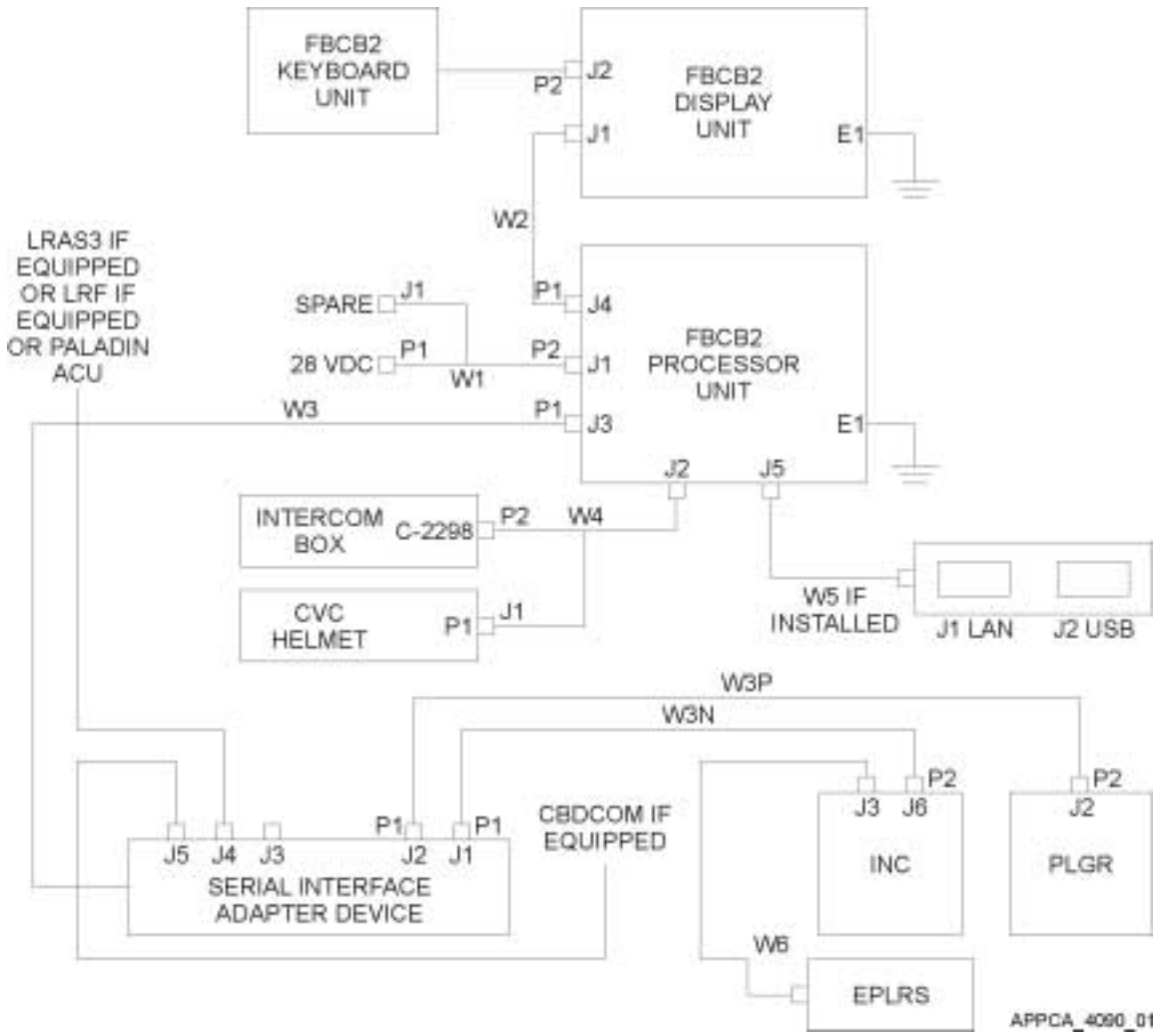


Figure 2 **Vehicle System Interconnect Diagram**

OPERATING PROCEDURES–Continued

PERIPHERAL EQUIPMENT SET UP–Continued

MILSATCOM Connection (Reference TM 11-5820-1130-12&P). The MILSATCOM Radio Set AN/PSC-5. The SPITFIRE AN/PSC-5 Enhanced Manpack UHF Terminal (EMUT) is a lightweight, Demand Assigned Multiple Access (DAMA), manpack, line-of-sight and tactical satellite communications terminal that will serve as a primary command-and-control single-channel radio for Army MAGTFs and their elements. SPITFIRE provides DAMA and Narrowband Secure Voice capability and will increase access and throughput for the warfighter. The SPITFIRE has embedded COMSEC and TRANSEC and weighs less than twelve pounds. Employed down to the battalion level, it provides range extension and reliability. The SPITFIRE is used to transmit intelligence traffic, interface with SINCGARS waveforms, and transmit/receive command-and-control traffic. The SPITFIRE AN/PSC-5 Radio connects to the FBCB2 System via the INC J4 connector.

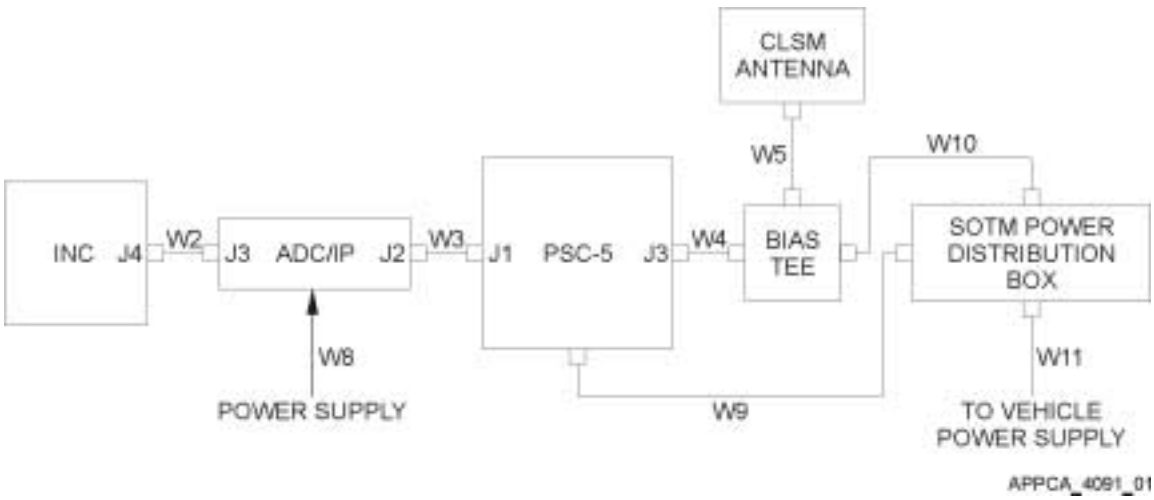


Figure 3 **MILSATCOM Spitfire AN/PSC-5 Radio Connection**

PLGR Connection (Reference TM 11-5820-291-13). The Precision Lightweight GPS Receiver (PLGR) is a self-contained receiver of Global Positioning System (GPS) satellite signal, allowing the FBCB2 user to derive position, velocity and time information. The AN/UYK-128(V) Computer connects to the PLGR via the W3P cable. From the computer Recommended Standard-422 or Electronic Industries Association-422 serial port, the W3P cable connects the P2 connector to the PLGR serial port and the P1 connector to the Serial Interface Adapter Device (SIAD).

EPLRS Connection (Reference TM 11-5825-283-10). The Enhanced Position Location Reporting System (EPLRS) provides transparent data management for near-real-time data, and expands tactical boundaries through horizontal and vertical integration on a single Net for all data users. The EPLRS interfaces with the AN/UYK-128(V) Computer and the SINCGARS through the Internet Controller (INC).

SINCGARS ASIP Connection (Reference TM 11-5820-890-10). The Single Channel Ground and Airborne Radio System (SINCGARS) Advanced System Improvement Program (ASIP) Receiver/Transmitter (R/T) connects to the AM-7239/VRC Vehicular Amplifier Adapter (VAA). This connection establishes the interface to the INC, EPLRS and the AN/UYK-128(V) Computer.

INC Connection. The Internet Controller (INC) is a router. It has the option to establish connectivity to either one or two SINCGARS ASIP radios. Used with two Receiver/Transmitters, the INC provides Intranet and Internet data links to the FBCB2 user. The capability of the AN/UYK-128(V) Computer to inter-operate with the INC allows the computer to become a fully functional source and destination addressee. The INC module is located on the SINCGARS ASIP VAA, AM-7239/VRC and is connected to the AN/UYK-128(V) Computer by cable.

OPERATING PROCEDURES–Continued

PERIPHERAL EQUIPMENT SET UP–Continued

Mission Data Load Connection. The Data Transfer Device/Mission Data Load(er) (DTD/MDL) may be connected to the AN/UYK-128(V) Computer Processor Unit (PU) or to the Display Unit (DU). The following figures illustrate the cable connection configurations for the AN/UYK-128(V) Computer and the DTD/MDL connection to the TOUGHBOOK computer.

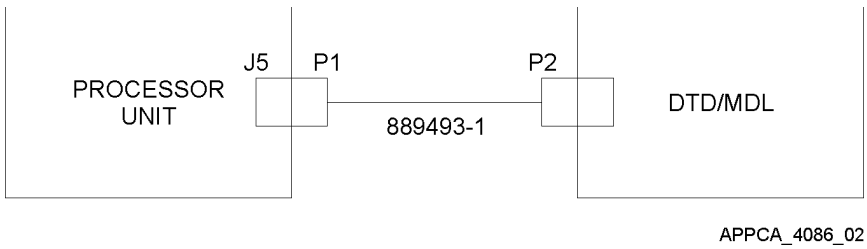


Figure 4 **DTD/MDL To AN/UYK-128(V) PU Connection Diagram**

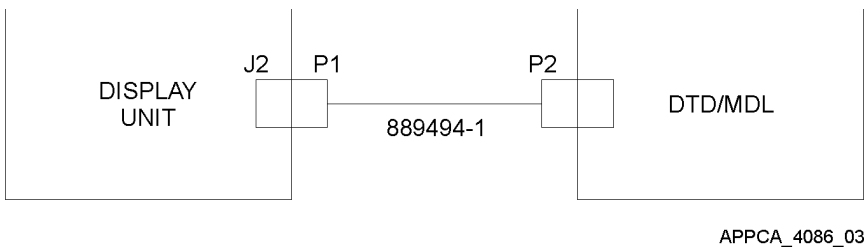


Figure 5 **DTD/MDL To AN/UYK-128(V) DU Connection Diagram**

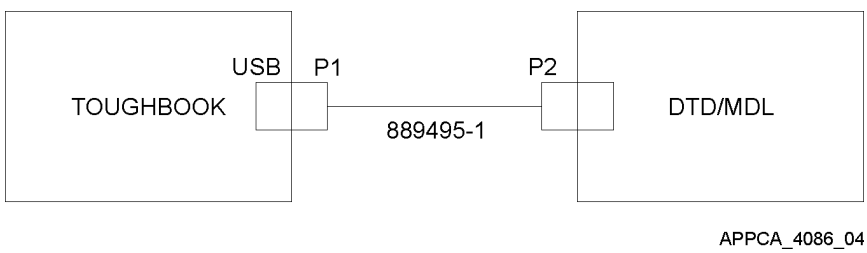


Figure 6 **DTD/MDL To Toughbook Connection Diagram**

OPERATING PROCEDURES

STARTUP/SHUT DOWN

This section consists of startup, initialization, and power down procedures for the MILSATCOM (if installed), PLGR, EPLRS (if installed), INC, SINCGARS ASIP, and AN/UYK-128(V) Computer hardware. Login and shut down procedures for the FBCB2 software are also included.

Equipment Power Up. The following tables use step-by-step procedures for powering up all the FBCB2 equipment. The FBCB2 equipment must be powered up in a specific sequence; MILSATCOM (if installed), PLGR, EPLRS (if installed), INC, SINCGARS (if installed) and then the AN/UYK-128(V) Computer. Before applying power to your platform ensure that all safety procedures are implemented. Follow all safety precautions, warnings and cautions to avoid injury to personnel and damage to equipment.

CAUTION

Ensure that the AN/UYK-128(V) Computer and all peripheral equipment are off when starting the vehicle, then apply power to the FBCB2 System in the correct sequence to avoid damage to the equipment.

CAUTION

The system may not properly initialize if power is on before the keyboard cable is connected. Power off before connecting the keyboard cable. When powering up the system, the keyboard must be connected to the display. Do not attempt to connect the Keyboard Unit (KU) while the system is powered up. Failure to comply can cause equipment damage.

NOTE

Performance of the AN/UYK-128(V) Computer will be degraded if all peripheral equipment is not initialized and started up in the proper sequence.

NOTE

To enable the AN/UYK-128(V) Computer to operate, equipment setup may need to be performed before startup. Refer to the appropriate Technical Manual (TM) if you need to setup the peripheral equipment.

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

MILSATCOM Startup (if installed). The following tables outline the startup procedures for platforms equipped with MILSATCOM. If MILSATCOM equipment is not installed, proceed to PLGR Startup.

NOTE

Ensure Crypto Select switch on ADC/IP is set to KG84 position and power switches on the ADC/IP, AN/PSC-5 radio, INC, BIAS TEE, and PLGR are in the OFF position.

Table 4. SOTM Power Distribution Box Startup

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Set the **SATCOM MAIN**, **SATCOM RADIO** and **SATCOM ANTENNA** switches to the **ON** position.	**SATCOM MAIN**, **SATCOM RADIO** and **SATCOM ANTENNA** switches set to **ON**.

Table 5. ADC/IP Startup

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Turn **POWER** switch to the **ON** position.	NOTE: The three LEDs on the front panel illuminate momentarily upon startup. **POWER** switch set to **ON** position.

Table 6. AN/PSC-5 Startup

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Set mode switch to **PT** position.	Radio initializes and performs power-up BIT test.
2	Turn the mode switch to the **CT** position.	**Current Mode** is displayed after initialization.
3	Verify the correct value of channel number.	Correct channel number is displayed.
4	Verify the correct value of channel device is **SATCOM**.	**SATCOM** is displayed.
5	Verify correct value of Data Rate is 2400 bps and set to DATA.	**D2400** is displayed.
6	Verify the modulation type is **PSK**.	**PSK** is displayed.
7	Verify the correct value of TPWR is 37 dbm.	**TPWR 37** is displayed.

Table 7. BIAS TEE Startup

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Turn power switch to the **ON** position.	Green LED is illuminated.

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

PLGR Startup. The following table provides the startup procedures for the Precision Lightweight GPS Receiver (PLGR). Refer to TM 11-5825-291-13 for PLGR set-up, if necessary.

CAUTION

Do not connect or disconnect the PLGR interface cable without first powering down the AN/UYK-128(V) Computer and PLGR. Failure to comply will result in equipment damage.

NOTE

The PLGR display results shown in the following table are examples only. Actual results will vary depending on your particular date, time, and location.

Table 8. PLGR Startup

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Press the **[1] ON BRT** button for two (2) seconds.	PLGR powers up and runs diagnostics. Display shows (e.g.):**NO FAULTS FOUND** **Battery Status** **0000 used** **0000 left** Display then shows (e.g.): **CONT OLD** **N 31 08" 42.71"** **W 97 46" 1561"** **ELh+00196ft**
	NOTE To save time, perform startup procedures for the EPLRS and SINCGARS ASIP while waiting for the PLGR to acquire satellites. **NOTE** It may take as long as 15 minutes for the PLGR to acquire satellites. Ensure that the PLGR has a good Line-Of-Sight (LOS) to the sky. The platform should not be under a roof or large overhead obstruction. **NOTE** If the self-test fails, a failure will be displayed. Notify Unit Maintenance	
2	Startup EPLRS (if installed on your vehicle).	See Table 9.
3	Startup SINCGARS ASIP.	See Table 11.
4	Press the [**5**] down arrow button.	Display shows (e.g.): **2124:43Z TFOM 8** **25-12-00 MON** **Speed too slow** **GS 2 kph**

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

Table 8. PLGR Startup–Continued

STEP	OPERATOR ACTION	INDICATION or CONDITION
	NOTE To enable cross-net radio communications, SINCGARS time must be synchronized within four (4) seconds of PLGR time. Follow your Unit SOP.	
5	Press the [**5**] down arrow button again.	Display shows (e.g.): **TRACK/SEARCH/** **23 13 26 06 24** **#VIS: 9 #GOOD: 9** **ALM AGE: > 1 day**
6	Press the [**5**] down arrow button again. **NOTE- Need FOM of 4 or less for operation.**	Display shows (e.g.): **CONT FOM 4** **N 31 08'42.71"** **W 97 46' 15.61"** **ELh+00196ft**
7	Startup the AN/UYK-128(V) Computer.	See Table 12.

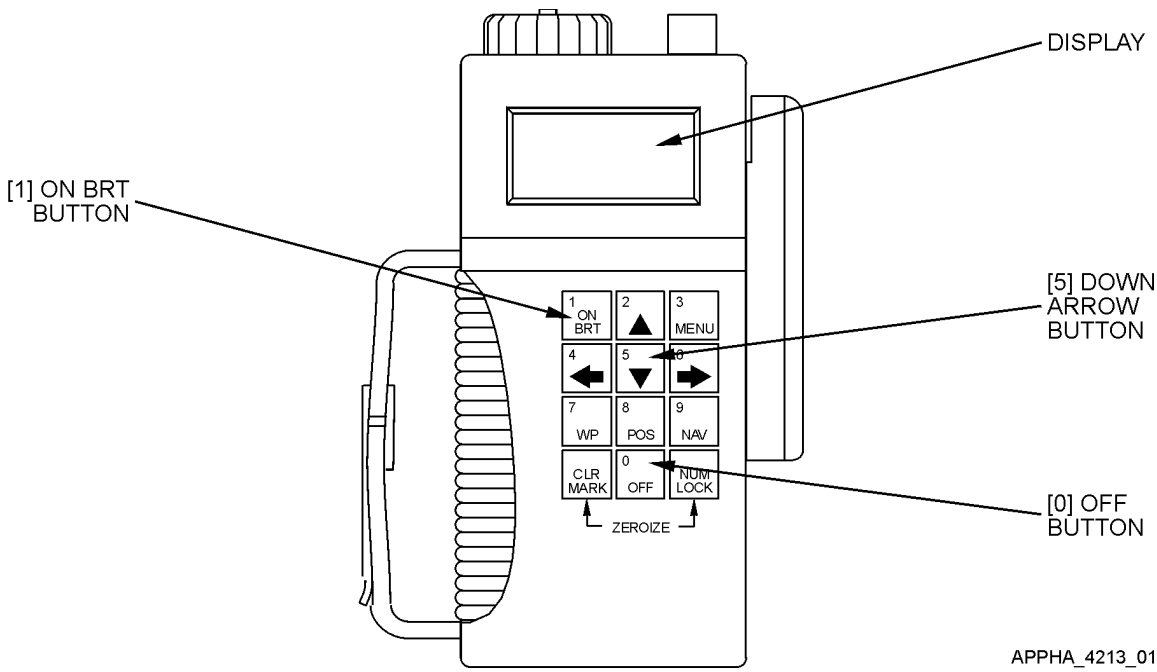


Figure 7 **Precision Lightweight GPS Receiver (PLGR)**

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

EPLRS Startup (if installed). See the following table for startup procedures for the Enhanced Position Location Reporting System (EPLRS). All steps must be completed. Refer to TM 11-5825-283-10-1 for more detailed information.

Table 9. EPLRS Startup

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Turn EPLRS **power** switch on the Receiver/Transmitter, Radio to **ON + AUDIBLE**.	a. If the green **POWER** indicator is illuminated, proceed to step 2. b. If the red **ALARM** indicator is illuminated, follow Unit SOP to load EPLRS COMSEC before proceeding to step 2.
2	EPLRS performs self-test.	On the URO, after 5 seconds, "**T**" and "**URO-OK**" are displayed in the MODE and MSG descriptor fields, respectively.
3	Using the Control Readout Unit, press repeatedly the URO **RCVD** button, until the EAST/BRG and NORTH/RNG fields of the URO display either:	a. If under MSG the following is displayed:**"@C" or "@S"**. This is a good fill. Proceed to step 4. b. If under MSG the following is displayed;**"@1" or "@3" or "@4"**. This is an improper fill. Reload COMSEC per Unit SOP. c. If under MSG the following is displayed:**"@O"**. Indicates no fill. Reload COMSEC per Unit SOP.
4	Observe whether the **OUT-OF-NET** red indicator light(s) are lit. **NOTE-**It may take several minutes for EPLRS to enter the Net.	a. If no red light(s) are lit, EPLRS is correctly initialized. Proceed with step 5. b. If a steady (or blinking) red light is displayed, refer to the EPLRS TM before proceeding.
5	Verify that the URO Radio Set ID (RSID) is the same as your FBCB2 setting (displayed under the **Admin...** button/**Platform Settings**/**Misc** tab after AN/UYK-128(V) Computer startup and Ops login).	a. If correct RSID, proceed with Table 10 and Table 11. b. If wrong RSID, zeroize the EPLRS. Turn off EPLRS and wait 30 seconds. Turn on EPLRS and enter "- -" in MSG field. Enter your FBCB2 RSID and guard channel. Press SEND key. Confirm changes were accepted. Reload COMSEC and then go back to step 3.

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

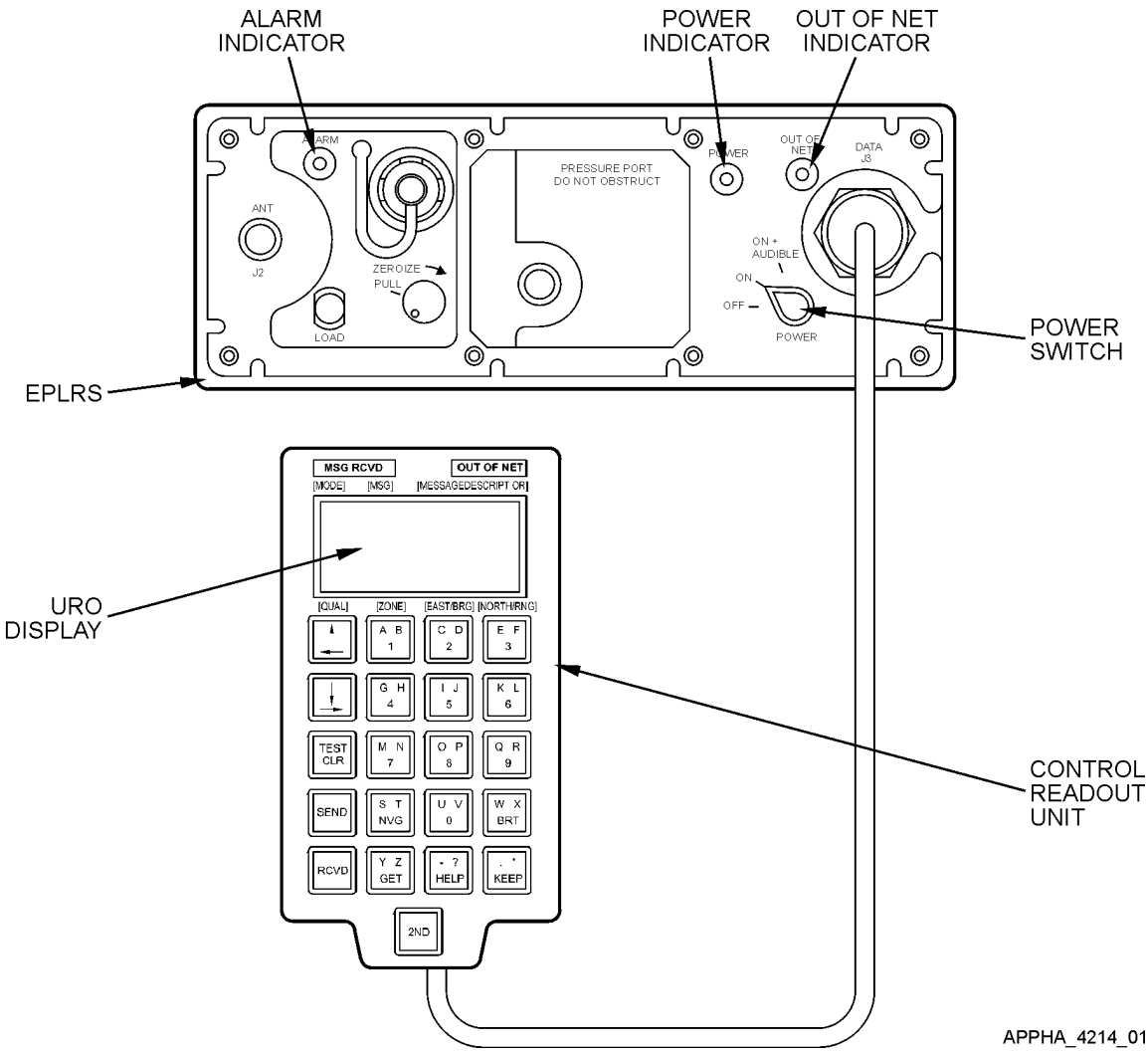


Figure 8 **Enhanced Position Location Reporting System (EPLRS)**

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

INC Startup. The following table shows the INC Startup procedures.

NOTE

If auxiliary equipment is present, such as LS 671/VRC Intercom System VIC-1 (VIS-3), than the power normally is controlled by this equipment when the Local/Remote switch on the VAA is set to remote (RMT).

Table 10. INC Startup

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	At the Vehicular Amplifier Adapter (VAA), set the **CB1 POWER** toggle switch to the **ON** (up) position.	The green **DS1** power light is illuminated.

SINCGARS ASIP Startup (if installed). See the following table for the Single Channel Ground and Airborne Radio System (SINCGARS) Advanced System Improvement Program (ASIP) startup. Refer to TM 11-5820-890-10 for more detailed information.

Table 11. SINCGARS ASIP Startup

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	At Receiver/Transmitter, (R/T) set the function switch to **SQ ON** (i.e., Squelch On) and verify your settings.**NOTE**-ASIP default setting are as follows: VOL (5), CHAN (1), PWR (LO), MODE (FH), COMSEC (CT), AND BACKLIGHT (LO).	"WAIT" first appears, then the following is displayed: PWR - LO, M, HI, PA MODE - FH CHAN - 1 (per Unit SOP) CMSC - CT
2	Verify that your COMSEC Crypto key is loaded.**NOTE**-If COMSEC Crypto is not loaded, "FILL1" will be displayed and a steady tone may be heard over your radio.	a. If COMSEC Crypto is loaded, proceed with step 3. b. If COMSEC Crypto is not loaded, follow proper Unit SOP to load Crypto before proceeding. (Refer to the SINCGARS TM if necessary.)
NOTE To enable the FBCB2 System to communicate, your SINCGARS ASIP must be set to the correct Net ID (for the AN/UYK-128(V) Computer), after startup and login, Net ID (Data Net Frequency) is displayed under the **F6 Admin...** button/**Platform Settings**/**Misc** tab.		
3	Verify that the Data Net Frequency displayed is the same as your FBCB2 setting. Press the **FREQ** button on the Receiver/Transmitter (R/T) keypad to display SINCGARS Net ID frequency setting.	a. If the correct frequency is displayed, proceed with step 4. b. If the wrong frequency is displayed, set your FBCB2 Data Net Frequency into the radio before proceeding. (Refer to the SINCGARS TM if necessary.)
NOTE To enable cross-net radio communications, the SINCGARS time must be synchronized within plus or minus 2 seconds of the PLGR time. step 4 shows the procedures to follow to verify the SINCGARS time.		

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

Table 11. SINCGARS ASIP Startup–Continued

STEP	OPERATOR ACTION	INDICATION or CONDITION
4	Verify that SINCGARS time is synchronized with your PLGR time. Press repeatedly the SINCGARS **TIME** button until minutes and seconds are both displayed. (SeeTable 8 to display your PLGR time.)	a. If SINCGARS time is plus or minus 2 seconds of PLGR time, proceed to step 5. b. If SINCGARS time is not within plus or minus 2 seconds of PLGR time, set PLGR time into the radio (if required by Unit SOP) before proceeding to step 5. (Refer to the SINCGARS TM if necessary.)
5	Verify PCKT mode. Press the 4 button on the Receiver/Transmitter (R/T) keypad, then press the 7 button repeatedly until "PCKT" is displayed.	PCKT Data Mode is set and verified when "PCKT" is displayed.
6	Startup the AN/UYK-128(V) Computer.	See Table 12 .

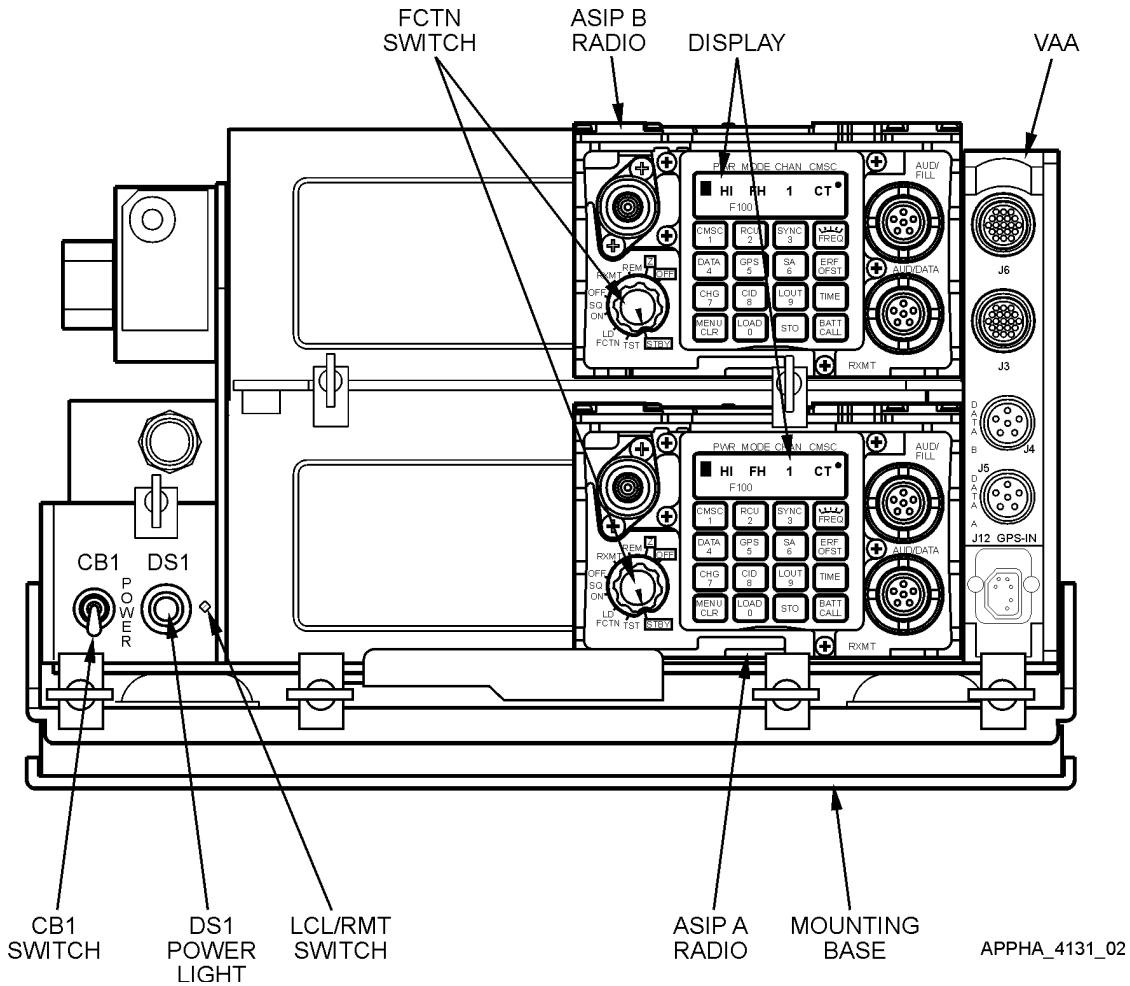


Figure 9 **Single Channel Ground and Airborne Radio System (SINCGARS) Advanced System Improvement Program (ASIP)**

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

AN/UYK-128(V) Computer Startup and Login. The following table describes the "Startup" procedure for the AN/UYK-128(V) Computer hardware and the "Login" procedure for the FBCB2 software. The MILSATCOM (if installed), PLGR, EPLRS (if installed), INC and SINCGARS ASIP (if installed) must be fully operational before "powering up" the AN/UYK-128(V) Computer.

NOTE

To ensure successful initialization of the AN/UYK-128(V) Computer, startup in the proper sequence the MILSATCOM (if installed), PLGR, EPLRS (if installed on your platform), INC and SINCGARS peripheral equipment.

Table 12. AN/UYK-128(V) Computer Startup/Login

STEP	OPERATOR ACTION	INDICATION OR CONDITION
1	Startup and initialize all peripheral equipment.	See WP 0005 00 STARTUP/SHUT DOWN for the correct peripheral startup sequence.
2	Set the circuit breaker/toggle switch on the Processor Unit (PU) to the "ON" position.	The circuit breaker/toggle switch on the side of the PU is pointed toward the "ON" position.
3	Press the Display Unit (DU) **PWR** button for up to four (4) seconds and release after the green **PWR** Light Emitting Diode (LED) illuminates.	The green **PWR**, **DISP**, and **CPU** LEDs cycle in sequence. The DU green PWR LED remains illuminated. Startup continues automatically until DU displays the Session Manager Screen with Task Bar on the bottom.
4	Select **Cancel Timeout** button on the "Ops Auto-Login" dialog box.	The "Ops Auto-Login" dialog box closes after the "Cancel Timeout" button is selected. The GPS and Router dialog boxes are displayed on the Session Manager screen and continuously updated during Comm startup.
NOTE The FBCB2 Count Down Timer has a 20 second time limit. If the timer is allowed to go to zero, the FBCB2 System will automatically begin to go online.		
5	Check the color of both GPS and Router dialog boxes (when Comm cycle is complete) to determine your operational status.	Green color coding indicates that the equipment is fully mission capable. Red color coding in the GPS (and/or Router) dialog box(es) indicates that initialization has failed and that the system is not responding.
NOTE Red color coding indicates a problem that should be addressed before step 6.		
6	Select the **Done** button on both the GPS and Router dialog boxes when initialization is complete.	The GPS and Router dialog boxes both close.
7	Select the **Start** button.	The "Start" option menu is displayed.
8	Select the **Login** option.	The "Ops Login" dialog box is displayed.
9	Select the "Password" text box.	The "Password" text box is highlighted and a blinking cursor is displayed.

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

Table 12. AN/UYK-128(V) Computer Startup/Login–Continued

STEP	OPERATOR ACTION	INDICATION OR CONDITION
10	Type in your Password.	Very small asterisks followed by a blinking cursor are displayed in the "Password" text box.
11	Select the **Continue** button.	The "Ops Login" dialog box closes.
	NOTE Always verify that the correct Unit/Role ID is displayed before proceeding with Login. Otherwise, operators will not be able to receive their own incoming FBCB2 messages and the operational status will be greatly degraded.	
12	Check the Unit/Role displayed in the Function Bar (located in the lower right hand corner of the Session Manager screen).	a. If correct Unit/Role is displayed, continue. b. If wrong Unit/Role is displayed, refer to Table 26 to perform the necessary steps to reconfigure.
	NOTE Unit SOP often requires the clearing of logs and queues. Therefore, you may want to go directly to Table 25 at this time. Otherwise, proceed with next step.	
13	Select the **Ops** button in the Session Manager Function Bar.	The system proceeds to go online. The Ops Main Screen with the "FBCB2 Display Process" dialog box is displayed.

NOTE

Per your Unit SOP, you may need to continue with WP 0005 00 FBCB2 PRE-MISSION SOFTWARE CHECKLIST to setup/verify your software pre-sets. Online Help is provided if you need quick information about other FBCB2 software operations.

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

Equipment Shut Down. This section shows the step-by-step instructions for shutting down the AN/UYK-128(V) Computer and all the FBCB2 equipment. From the Session Manager Screen, the operator must perform an orderly shut down so that the AN/UYK-128(V) Computer keeps all program data. It is essential that the operator shut down the FBCB2 equipment in the correct sequence. Failure to follow proper shut down procedures can damage the equipment and will cause other FBCB2 platforms to receive incorrect information about the platform. The AN/UYK-128(V) Computer must be shut down first, before the PLGR, EPLRS (if equipped), SINCGARS ASIP (if equipped), and MILSATCOM (if equipped).

AN/UYK-128(V) Computer Shut Down. Shut down procedures consist of first shutting down the AN/UYK-128(V) Computer, and then the peripheral equipment. See the following table for the AN/UYK-128(V) Computer shut down procedures.

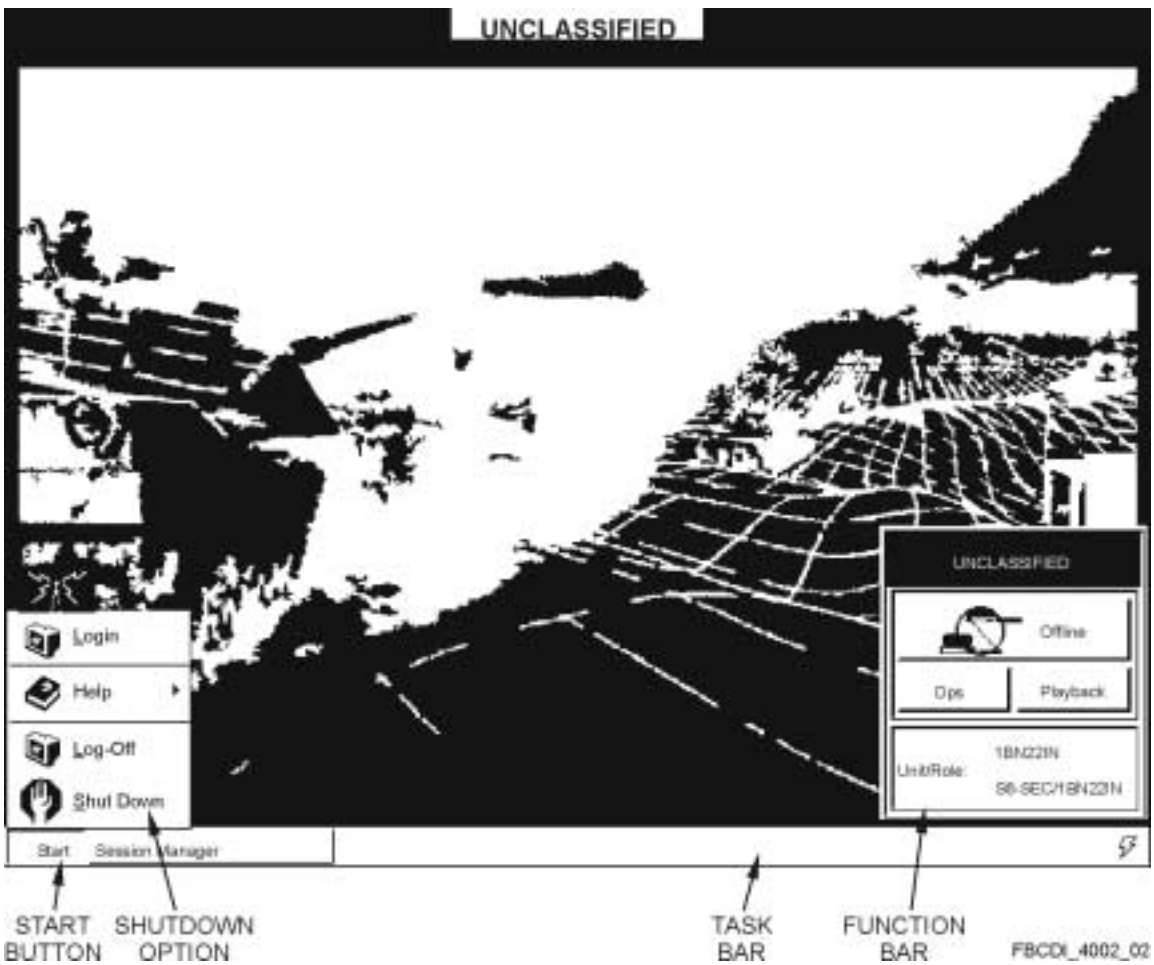


Figure 10 **Session Manager Screen (During Shut Down)**

CAUTION

Do not shutdown the computer power without first following software shutdown procedures. Failure to comply may cause loss of program data.

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

CAUTION

Leaving the Processor Unit (PU) circuit breaker/switch set to ON will enable the battery pack to continuously charge as long as there is 18-33 VDC power available. This could possibly result in a dead vehicle battery if left in this condition over an extended period.

CAUTION

The Keyboard Unit (KU) should be disconnected and properly stowed when not in use to prevent it from causing equipment damage.

NOTE

Do not select the Destroy FBCB2 button. Selecting the Destroy FBCB2 button will cause a Flash Mayday message to be sent, INC to reset to factory defaults, overwrite the Hard Disk Drive FBCB2 operational database and FBCB2 executable files.

Table 13. AN/UYK-128(V) Computer Shut Down

STEP	OPERATOR ACTION	INDICATION or CONDITION
From the FBCB2 Display Process screen:		
1	Select the **F6 Admin...** button.	The "Admin" dialog box is displayed.
2	Select the **Exit Ops...** button.	The "Exit Ops" confirmation dialog box is displayed.
3	Select the **Yes** button.	The "Exit Ops" confirmation dialog box closes. The "Ops Auto-Login" dialog box opens with countdown timer started.
4	Select **Cancel Timeout** button.	The "Ops Auto-Login" dialog box closes.
5	Select the **Start** button.	The "Start" option menu is displayed.
6	Select the **Shut Down...** option.	The SHUT DOWN confirmation dialog box is displayed.
7	Select the **Yes** button.	Screen displays: **Shutting Down the System. Safe to power off when the screen message says: "syncing file systems...done"**. When **syncing file systems...done** message is displayed at bottom of the screen, proceed to next step.
8	Press DU **PWR** button for up to 4 seconds and release after DU **PWR** LED goes dark.	All display lights are dark (i.e., not illuminated).
9	Set the circuit breaker/toggle switch on the PU to the "OFF" position.	The circuit breaker/toggle switch on the side of the PU is pointed toward the "OFF" position.
10	Ensure system is properly secured (e.g., PU, DU and KU locked and secured).	

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

PLGR Shut Down. The following table provides shut down procedures for the Precision Lightweight GPS Receiver (PLGR), which is shut down by pressing the [**0**] **OFF** button for two seconds. The PLGR will then shut itself down within 30 seconds.

Table 14. PLGR Shut Down

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Press the [**0**] **OFF** button for two seconds. **NOTE**PLGR will shut down within 30 seconds.	The PLGR displays: **Unit Turning OFF in ___ seconds** **ON**: to cancel **OFF**: quick off

SINCGARS ASIP Shut Down (if installed). The following table provides shut down procedures for the Single Channel Ground and Airborne Radio System (SINCGARS) Advanced System Improvement Program (ASIP).

NOTE

Set the Function (FCTN) switch to "OFF" if you want to zeroize COMSEC, radio frequency and time settings. Set the FCTN switch to Standby (STBY) if you want to retain this data in the radio's memory so that it will not need to be reloaded at a later time. Follow your Unit SOP.

Table 15. SINCGARS ASIP Shut Down

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Set the **FCTN** switch to **STBY** or to **OFF** per your Unit SOP.**NOTE-**Before changing settings, pull out the FCTN switch.	The SINCGARS display goes blank (i.e., dark).

INC Shut Down. The following table shows the procedures to shut down the INC.

Table 16. INC Shut Down

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	At the Vehicular Amplifier Adapter (VAA), set the **CB1** POWER toggle switch to the **OFF** position (i.e., the down position).	The green **DS1** POWER indicator light goes off.

OPERATING PROCEDURES–Continued

STARTUP/SHUT DOWN–Continued

EPLRS Shut Down (if installed). The following table shows the procedures for shut down of the Enhanced Position Location Reporting System (EPLRS).

Table 17. EPLRS Shut Down

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Turn the **POWER** switch to the **OFF** position.	The green **POWER** indicator light goes off.

MILSATCOM Shut Down (if installed). The following tables show the procedures for shut down of the MILSATCOM.

Table 18. SOTM Power Distribution Box Shut Down

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Set the **SATCOM MAIN**, **SATCOM RADIO** and **SATCOM ANTENNA** switches to the **OFF** position.	**SATCOM MAIN**, **SATCOM RADIO** and **SATCOM ANTENNA** switches set to **OFF**.

Table 19. ADC/IP Shut Down

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Turn **POWER** switch to the **OFF** position.	**POWER** switch set to **OFF** position.

NOTE

The current operating mode, all menu entries, and previously loaded COMSEC and orderwire keys are maintained intact when the mode switch is set to OFF.

NOTE

Zero variables per SOP by setting mode switch to the Z position.

Table 20. AN/PSC-5 Shut Down

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Turn the mode switch to the **OFF** position.	

Table 21. BIAS TEE Shut Down

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Turn power switch to the **OFF** position.	Green LED is not Lit.

OPERATING PROCEDURES

REBOOT AN/UYK-128(V) COMPUTER

This section shows the step-by-step instructions to do a reboot (restart) of the AN/UYK-128(V) Computer hardware and software. This function stops all applications, clears the screen, and restarts the AN/UYK-128(V) Computer.

NOTE

If the procedure cannot be performed due to a locked up screen or locked up software refer to Table 23.

NOTE

Do not select the Destroy FBCB2 button. Selecting the Destroy FBCB2 button will cause a Flash Mayday message to be sent, INC to reset to factory defaults, overwrite the Hard Disk Drive FBCB2 operational database and FBCB2 executable files.

NOTE

System may not appear to be responding if it is processing data. Preform this procedure only when the system is not responding correctly.

Table 22. Reboot AN/UYK-128(V) Computer

STEP	OPERATOR ACTION	INDICATION or CONDITION
From the FBCB2 Display Process screen:		
1	Select the **F6 Admin...** button.	The "Admin" dialog box is displayed.
2	Select the **Exit Ops...** button.	The "Exit Ops" confirmation dialog box is displayed.
3	Select the **Yes** button.	The "Exit Ops" confirmation dialog box closes. The "Ops Auto-Login" dialog box opens with countdown timer started.
4	Select **Cancel Timeout** button.	The "Ops Auto-Login" dialog box closes.
NOTE The FBCB2 Count Down Timer has a 20 second time limit. If the timer is allowed to go to zero, the FBCB2 System will automatically begin to go online.		
5	Select the **Start** button.	The "Start" option menu is displayed.
6	Select the **Shut Down...** option.	The SHUT DOWN confirmation dialog box is displayed.
7	Select the **Yes** button.	Screen displays: **Shutting Down the System. Safe to power off when the screen message says: "syncing file systems...done"**. When **syncing file systems...done** message is displayed at bottom of the screen, proceed to next step.
8	Press DU **PWR** button for up to 4 seconds and release after DU **PWR** LED goes dark.	All display lights are dark (i.e., not illuminated).

OPERATING PROCEDURES–Continued

REBOOT AN/UYK-128(V) COMPUTER–Continued

Table 22. Reboot AN/UYK-128(V) Computer–Continued

STEP	OPERATOR ACTION	INDICATION or CONDITION
9	Wait at least 10 seconds after the Processor Unit (PU) is powered down to allow the RHDDC disk to stop spinning.	
10	Press the Display Unit (DU) **PWR** button for up to four (4) seconds and release after the green **PWR** Light Emitting Diode (LED) illuminates.	The green **PWR**, **DISP**, and **CPU** LEDs cycle in sequence. The DU green PWR LED remains illuminated. Startup continues automatically until DU displays the Session Manager Screen with Task Bar on the bottom.
11	Select **Cancel Timeout** button on the "Ops Auto-Login" dialog box.	The "Ops Auto-Login" dialog box closes after the "Cancel Timeout" button is selected. The GPS and Router dialog boxes are displayed on the Session Manager screen and continuously updated during Comm startup.
12	Select the **Done** button on both the GPS and Router dialog boxes when initialization is complete.	The GPS and Router dialog boxes both close.
13	Select the **Start** button.	The "Start" option menu is displayed.
14	Select the **Login** option.	The "Ops Login" dialog box is displayed.
15	Select the "Password" text box.	The "Password" text box is highlighted and a blinking cursor is displayed.
16	Type in your Password.	Very small asterisks followed by a blinking cursor are displayed in the "Password" text box.
17	Select the **Continue** button.	The "Ops Login" dialog box closes.
18	Select the **Ops** button in the Session Manager Function Bar.	The system proceeds to go online. The Ops Main Screen with the "FBCB2 Display Process" dialog box is displayed.

OPERATING PROCEDURES

EXIT BCOPS

This section shows the step-by-step instructions to exit from the FBCB2 Display Process screen when the system is locked up and not responding. This function stops all applications, clears the screen, and restarts the AN/UYK-128(V) Computer.

Table 23. Exit BCOPS

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Select the **Start** button from the task bar.	The "Start" menu options are displayed.
2	Select the **FBCB2** menu option.	The "FBCB2" menu options are displayed.
3	Select the **Exit BCOPS** option.	The “Exit BCOPS” confirmation dialog box is displayed.
4	Select the **Yes** button.	Exit BCOPS confirmation dialog box closes. The **Ops Auto-Login** dialog box opens with countdown timer started. Countdown timer will continue to **0** and system will go online. The Ops Main Screen with the **FBCB2 Display Process** dialog box is then displayed.

OPERATING PROCEDURES

RESTORE DATABASE

This section shows the step-by-step instructions to restore the system to the previous role that is not corrupted or if the system detects an improper shut down from the previous session. If an improper shut down is detected some functionality may be degraded. This procedure is performed off-line.

NOTE

The following procedure is used after having switched roles and the FBCB2 database appears corrupted (i.e., not recognizing the new role functionality). All messages, message setting and user settings will be deleted. System will return to previous Role/ID.

Table 24. Restore Database

STEP	OPERATOR ACTION	INDICATION or CONDITION
1	Select the **Start** button from the task bar.	The "Start" menu options are displayed.
2	Select the **FBCB2** menu option.	The "FBCB2" menu options are displayed.
3	Select the **Restore Database...** option.	A dialog box displays “Continuing this action will delete all messages, message settings and user settings. Do you want to continue?”
4	Select **OK** to restore database.	The “Restoring the database...” message box will appear. Once completed, “The database has been restored” dialog box will appear.
5	Press the **OK** button.	Continue with normal FBCB2 operations.

OPERATING PROCEDURES

FBCB2 PRE-MISSION SOFTWARE CHECKLIST

This section provides a checklist of the FBCB2 software pre-sets that the operator should review and set up as necessary prior to a mission. This section also provides step-by-step set-up procedures for performing the most commonly needed software pre-sets. Refer to the embedded Software Users Manual (SUM) for detailed information.

The following FBCB2 software pre-set checklist should be reviewed prior to your mission and set up as needed based on the particular requirements of that mission:

1. Session Manager:
    a. Clear Logs and Queues
    b. Check Role Configuration
2. Hardware Settings:
    a. Bell Settings
    b. Keyboard Settings
    c. Set Mouse
    d. Touchscreen Calibration
3. Map Functions:
    a. Background Tab Group
    b. Grid Tab Group
4. Filters Functions:
    a. SA Tab Group
    b. Collapse/Expand Tab Group
    c. Overlays Tab Group
    d. Obstacle Overlays Tab Group
5. Message Defaults:
    a. Set Default Message Addressing
    b. Addresses Tab Group
6. Admin. Settings:
    a. Platform Location Settings
    b. Data Net Frequency
    c. Radio Set ID
    d. MEDEVAC Settings
    e. Local Settings
    f. SA Settings
7. Mission Data:
    a. Mission Data Download
    b. Mission Data Upload

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Session Manager. When the FBCB2 computer is switched on, the system will initialize and display the Session Manager screen.

Clear Logs and Queues. The AN/UYK-128(V) Computer will operate more efficiently (with less chance of a software slowdown or need to reboot the system) if logs and queues are cleared regularly. The "Clear Logs and Queues" function allows the user to delete queues, playback logs, user folder entries and Situational Awareness (SA) data from the system memory. Follow applicable Unit SOP when clearing logs and queues. The FBCB2 System software must be offline.

NOTE

If you are not already logged in to the AN/UYK-128(V) Computer, perform Startup/Login (Table 12) before proceeding with the following table.

NOTE

When the disk drive is near its capacity, a highlighted exclamation point will be displayed on the "F5 Status..." button and the "General" tab.

Table 25. Clear Logs And Queues

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Task Bar while Offline (but after Login):		
1	Select the **Start** button.	The "Start" option menu is displayed.
2	Select the **FBCB2** menu option.	The "FBCB2" option menu is displayed.
3	Select the **Clear Logs and Queues...** option.	The "Clear Logs and Queues" dialog box is displayed.
4	Under **Select Items to Clear**, select options by selecting check box(s) next to the item(s) you want to clear.	The selected item(s) are shown with a check mark displayed in their corresponding check box(s).
5	Select the **Apply** button to clear the selected options.	The "Clear Logs and Queues Status" dialog box is displayed.
6	Select the **Close** button when the following message is displayed: **COMPLETED CLEAR LOGS & QUEUES OPERATION**.	The "Clear Logs and Queues Status" dialog box closes.
7	Select the **Close** button.	The "Clear Logs and Queues" dialog box closes.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Check Role Configuration. The following table shows how to check your Role/ID and how to use the "Help" feature to reconfigure the AN/UYK-128(V) Computer to a new Role/ID, if necessary.

NOTE

If the Removable Hard Disk Drive Cartridge (RHDDC) on your AN/UYK-128(V) Computer is replaced, your Role/ID may be incorrect and will need to be reconfigured. Otherwise, operators will not be able to receive their own incoming Command and Control (C2) messages. Also, the message flow between different echelons may be adversely impacted by information that is relayed incorrectly due to the wrong Role/ID on your computer.

Table 26. Check Role Configuration

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Session Manager Screen during startup:		
1	Select the **Cancel Timeout** button in the "Ops Auto Login" dialog box.	The "Ops Auto Login" dialog box closes. The Session Manager screen and Function Bar are displayed.
2	Check the Unit/Role in the Function Bar of the Session Manager screen.	a. If correct Unit/Role is displayed, proceed to step 3 b. If wrong Unit/Role, proceed to step 4.
3	If correct Unit/Role, select the **Ops** button in the dialog box.	The "Going Online" dialog box is displayed with countdown and the system goes online.
4	If wrong Unit/Role, select the **Start** button.	The "Start" option menu is displayed.
5	Select the **Help** option.	The "Help" option menu is displayed.
6	Select the **Users Manual** option.	The embedded SUM is displayed in the "Help" dialog box.
7	Select the **Index** button.	An alphabetical index is displayed.
8	Select "Configure Role" from the list.	Step-by-step instructions are displayed.
9	Follow instructions to configure role.	System performs configuration function(s) chosen by user.

Hardware Settings. The **Start** button located in the Task Bar at the bottom of the screen allows the user to preset (when the system is either online or offline) the following FBCB2 software controls: bell, keyboard, mouse, and touchscreen.

Bell Settings. The user may select to turn on/off the audible bell notification inside the AN/UYK-128(V) Computer. The following table shows the procedures.

Table 27. Bell Settings

STEP	OPERATOR ACTION	INDICATION or condition
1	Select the **Start** button.	The "Start" option menu is displayed.
2	Select the **Settings** option.	The "Settings" option menu is displayed.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Table 27. Bell Settings–Continued

STEP	OPERATOR ACTION	INDICATION or condition
3	Select the **Bell Settings** option.	The "Bell Settings" toggle is displayed with a red check box indicating either "Bell On" or "Bell Off".
4	Select either the **Bell On**or the **Bell Off** toggle option.	All option menus close.

Keyboard Settings. The user may select to turn on/off the auto-repeat feature of the Keyboard Unit (KU), as shown in the following table. When the auto repeat features activated, pressing down and holding any key will cause that particular keystroke to be repeated continuously until the user releases that key.

Table 28. Keyboard Settings

STEP	OPERATOR ACTION	INDICATION or condition
1	Select the **Start** button.	The "Start" option menu is displayed.
2	Select the **Settings** option.	The "Settings" option menu is displayed.
3	Select the **Keyboard** option.	The "Keyboard" toggle is displayed with a red check box indicating either "Auto Repeat On" or "Auto Repeat Off".
4	Select either the **Auto Repeat On** or **Auto Repeat Off** toggle option.	All option menus close.

Set Mouse. The "Set Mouse" option allows the user to set the movement and acceleration relationship between the mouse pointer device and the on-screen pointer. The user may also restore the default settings. These procedures are listed in the following table.

Table 29. Mouse Settings

STEP	OPERATOR ACTION	INDICATION or condition
1	Select the **Start** button.	The "Start" option menu is displayed.
2	Select the **Settings** option.	The "Settings" option menu is displayed.
3	Select the **Mouse** option.	The "Set Mouse" dialog box is displayed.
4	Select the slider for "Acceleration" and drag it (left or right) to the desired acceleration level.	The slider is displayed (with a number reference) at the position selected.
5	Select the slider for "Distance before mouse accelerates" and drag it (left or right) to the desired distance.	The slider is displayed (with a number reference) at the position selected.
6	Select the **Apply** button.	The system applies the new settings
7	Select the **Defaults** button, if desired.	The system applies the original default settings.
8	Select the **Done** button.	The "Set Mouse" dialog box closes.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Touchscreen Calibration. The "Calibrate Touchscreen" option allows the user to realign the AN/UYK-128(V) Computer hardware touch sensors with the software touch sensor screen addresses. The procedures for touchscreen calibration are shown in the following table.

NOTE

If touchscreen does not respond properly to touch using the stylus, use the Keyboard Unit mouse to move cursor and perform the touchscreen calibration procedure.

Table 30. Touchscreen Calibration

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Task Bar anytime after Login:		
1	Select the **Start** button.	The "Start" option menu is displayed.
2	Select the **Settings** option.	The "Settings" option menu is displayed.
3	Select the **Touch Screen...** option.	The calibration touchscreen is displayed with a target bulls eye at the lower left corner.
4	Select the center of the target bulls eye with the stylus.	The calibration touchscreen is displayed with a target bulls eye at the upper right corner.
5	Select the center of the target bulls eye with the stylus.	The calibration touchscreen is displayed with a target bulls eye at the lower right corner.
6	Select the center of the target bulls eye with the stylus.	The calibration screen closes. The "osc_touch_calibrate.ksh" dialog box is displayed.
7	Type the letter "y".	The letter "y" is displayed at the enter prompt.
8	Select the **Enter** key.	The "osc_touch_calibrate.ksh" dialog box closes.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Map Functions. The **F1 Map...** button contains options that allow the user to choose the type, size, position and appearance of the Situational Awareness (SA) map.

NOTE

Selecting only the "OK" button performs the same function as first selecting the "Apply" button and then selecting the "Close" button.

Background Tab Group. The **Background** tab group is used to choose the Type, Scale, Zoom magnification, and Appearance (Brightness/Contrast) of the FBCB2 map display. Procedures for the Situational Awareness (SA) map background are presented in the following table.

Table 31. Background Tab Group

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Ops Function Bar on the FBCB2 Display Process screen:		
1	Select the **F1 Map...** button.	The "Map Control" dialog box is displayed.
2	Select the **Background** tab.	The "Background" tab group is displayed.
3	Select one or more of the "Background Type" check boxes.	A check mark is displayed in the selected check box.
TO ADJUST THE MAP SCALE:		
4	Select the **Scale: down arrow** button.	The map scale options list is displayed.
5	Select an option from the scale dropdown list.	The selection is displayed in the "Scale:" text box.
TO ADJUST THE MAP MAGNIFICATION:		
6	Select the **Zoom: down arrow** button.	The magnification options list is displayed.
7	Select an option from magnification dropdown list.	The selection is displayed in the "Zoom:" text box.
TO ADJUST THE MAP BRIGHTNESS:		
8	Select the **Brightness** control slider.	The "Brightness" control slider is highlighted.
9	Drag the slider left or right.	Brightness is adjusted. (Left = less. Right = more.)
TO ADJUST THE MAP CONTRAST:		
10	Select the **Contrast** Control slider.	The "Contrast" control slider is highlighted.
11	Drag the slider left or right.	Contrast is adjusted. (Left = less. Right = more.)
TO SET USER CHANGES AS DEFAULT SETTINGS:		
12	Select the **Set Defaults** button.	The changes selected are made the default settings.
TO RESTORE THE ORIGINAL DEFAULT SETTINGS:		
13	Select the **Restore Defaults** button.	The system defaults loaded at initialization are restored.
TO CLOSE THE BACKGROUND TAB GROUP:		
14	Select the **OK** button.	The changes are applied. The "Map Control" dialog box closes.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Grid Tab Group. The **Grid** tab group is used to select the coordinate type and the accuracy of the Military Grid Reference System (MGRS) coordinates displayed. There are also options to display computer-generated gridlines on the Situational Awareness (SA) display, choose dimensions for gridline spacing, and change the grid color. See the following table for the procedures.

Table 32. Grid Tab Group

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Ops Function Bar on the FBCB2 Display Process screen:		
1	Select the **F1 Map...** button.	The "Map Control" dialog box is displayed.
2	Select the **Grid** tab group.	The "Grid" tab group is displayed.
3	Select the **Coordinate Type: down arrow** button.	The "Coordinate Type" options list is displayed.
4	Select an option from the coordinate type list.	The selection is displayed in the "Coordinate Type:" text box.
TO SET THE MGRS DISPLAY ACCURACY:		
5	Select the **Coordinate Type: down arrow** button.	The "Coordinate Type" options list is displayed.
6	Select the "MGRS" option from the coordinate type list.	The selection is displayed in the "Coordinate Type:" text box.
7	Select the **MGRS Accuracy: down arrow** button.	The "MGRS Accuracy" options list is displayed.
8	Select an option from the list.	The selection is displayed in the “MGRS Accuracy” text box.
TO DISPLAY GRIDLINES:		
9	Select the "Show Grid" check box.	A check mark in the "Show Grid" check box is displayed.
TO SELECT THE GRIDLINE DISPLAY SPACING:		
10	Select the **Gridline Spacing: down arrow** button.	The spacing options list is displayed.
11	Select an option from the list.	The selection is displayed in the "Gridline Spacing:" text box.
TO SELECT THE GRIDLINE DISPLAY COLOR:		
12	Select the **Gridline Color: down arrow** button.	The color options list is displayed.
13	Select an option from the list.	The selection is displayed in the "Gridline Color:" text box.
14	Select the **Apply** button.	The current settings are applied.
TO SET THE CHANGES AS DEFAULT SETTINGS:		
15	Select the **Set Defaults** button.	The changes selected are made the default settings.
TO RESTORE THE ORIGINAL DEFAULT SETTINGS:		
16	Select the **Restore Defaults** button.	The system defaults loaded at initialization are restored.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Table 32. Grid Tab Group–Continued

STEP	OPERATOR ACTION	INDICATION OR CONDITION
TO CLOSE THE GRID TAB GROUP:		
17	Select the **Close** button.	The "Map Control" dialog box closes.

Filters Functions. The **F2 Filters...** button contains options that allow the user to choose the unit icons and geo-reference icons on the Situational Awareness (SA) display.

NOTE

Since different Situational Awareness (SA) filter options may change the features of the SA map displayed, follow applicable Unit SOP when pre-setting all filters.

SA Tab Group. The **SA** tab group contains check boxes and option buttons that allow the user to select/deselect the unit icons, labels, and geo-reference objects to display on the Situational Awareness (SA) map. The following table shows the display/hide all (toggle on/toggle off) functions only.

NOTE

Selecting the "Select" option button for "Friendly" or "Enemy" (under the **SA** tab), or the "Overlays" option button (under the **Overlays** tab), will make additional pick lists available to the user.

Table 33. SA Tab Group Filters

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Ops Function Bar on the FBCB2 Display Process screen:		
1	Select the **F2 Filters...**button.	The "Filters" dialog box is displayed.
2	Select the **SA** tab group.	The "SA" tab group is displayed.
TO DISPLAY ALL UNIT AND OBJECT ICONS:		
3	Select the **All On** button.	All icons/objects on the SA map are toggled on.
TO HIDE ALL UNIT AND OBJECT ICONS:		
4	Select the **All Off** button.	All icons/objects on the SA map are toggled off.
5	Select the **Close** button.	The "Filters" dialog box closes.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Collapse/Expand Tab Group. The **Collapse/Expand** tab group contains a listing of the Unit Task Organization (UTO) displayed in a directory tree format. When the folder is collapsed (closed), only the unit icon representing the indicated command level selected by the user will appear on the Situational Awareness (SA) display, at approximately the center of mass of all subordinate units. When a folder is expanded (opened), these subordinate units will also be displayed on the SA display.

NOTE

Organizational icons will be located on the Situational Awareness (SA) map at the center of mass of all its subordinate units, whether or not the subordinate unit icons are visible on the SA map being displayed.

Table 34. Collapse/Expand Tab Group

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Ops Function Bar on the FBCB2 Display Process screen:		
1	Select the **F2 Filters...**button.	The "Filters" dialog box is displayed.
2	Select the **Collapse/Expand** tab group.	The "Collapse/Expand" tab group is displayed.
TO COLLAPSE A FOLDER:		
3	Select the **-** (minus) sign preceding the desired folder.	The subordinate unit folders are hidden and the selected unit folder is displayed as closed.
TO EXPAND A FOLDER:		
4	Select the **+** (plus) sign preceding the desired folder.	The subordinate unit folders are displayed and the selected unit folder is displayed as opened.
TO SEARCH THE LIST FOR A UNIT:		
5	Select the **Search** text box.	The "Search" text box is highlighted and a blinking cursor is displayed.
6	Enter a unit name.	The name is displayed in the "Search" text box.
7	Select the **Search** button.	The matched name is highlighted.
TO UPDATE THE VIEW OF UNITS REPORTING:		
8	Select the **Refresh** button.	The "circle-diagonal slash" icon is removed from the folder.
TO EXPAND ALL UNIT FOLDERS:		
9	Select the **Expand All** button.	All folders are opened and all icons are displayed.
10	Select the **Close** button.	The "Filters" dialog box closes.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Overlays Tab Group. The **Overlays** tab group allows the user to load/unload (and to display/hide) overlays that have been created and saved in message folders and to display/hide all related labels. See the following table for the procedures.

Table 35. Overlays Tab Group

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Ops Function Bar on the FBCB2 Display Process screen:		
1	Select the **F2 Filters...**button.	The "Filters" dialog box is displayed.
2	Select the **Overlays** tab group.	The "Overlays" tab group is displayed.
TO DISPLAY ALL LABELS:		
3	Under **Labels,** select the **All** option button.	All "Overlay" labels are toggled on and shown on the SA display.
TO HIDE ALL LABELS:		
4	Under **Labels**, select the **None** option button	All "Overlay" labels are toggled off and not shown on SA display.
TO LOAD OVERLAYS:		
5	Under **Overlays**, select the **Select** option button	The overlay control buttons are displayed.
6	Select the **Load...** button.	The "Overlay Loader" dialog box is displayed.
7	Select an overlay filename.	The selected filename is displayed in the "File:" text box.
8	Select the **OK** button.	The selected filename is displayed.
TO DISPLAY ALL LOADED OVERLAYS:		
9	Under **Overlays**, select the **All** option button.	All loaded overlays are displayed.
TO HIDE ALL LOADED OVERLAYS:		
10	Under **Overlays**, select the **None** option button.	All loaded overlays are not displayed.
TO DISPLAY SELECTED OVERLAYS:		
11	Under **Overlays**, select the **Select** option button.	The overlay control widgets are displayed.
12	Select any of the blank check boxes adjacent to the overlay filenames.	A check mark is displayed in each check box selected.
TO HIDE SELECTED OVERLAYS:		
13	Deselect the check box adjacent to an overlay filename.	The deselected overlays are hidden.
TO UNLOAD AN OVERLAY:		
14	Select an overlay filename.	The selected filename is highlighted.
15	Select the **Unload Selected** button.	The "Unload Selected Overlay" dialog box is displayed.
16	Select the **OK** button.	The overlay name is removed from the "Overlays" option list.
TO UNLOAD ALL OVERLAYS:		

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Table 35. Overlays Tab Group–Continued

STEP	OPERATOR ACTION	INDICATION OR CONDITION
17	Select the **Unload All** button.	The "Unload All Overlays" dialog box is displayed.
18	Select the **OK** button.	All overlay names are removed from the option group.
TO EXIT FILTERS FUNCTIONS:		
19	Select the **Close** button.	The "Filters" dialog box closes.

Obstacle Overlays Tab Group. The **Obstacle Overlays** tab group allows the user to display/hide/delete obstacle information received and automatically shown on the Situational Awareness (SA) display from the receipt of obstacle overlay messages. The following table shows the procedures for displaying, hiding, and deleting obstacle overlay information.

Table 36. Obstacle Overlays Tab Group

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Ops Function Bar on the FBCB2 Display Process screen:		
1	Select the **F2 Filters...**button.	The "Filters" dialog box is displayed.
2	Select the **Obstacle Overlays** tab group.	The "Obstacle Overlays" tab group is displayed.
TO DISPLAY ALL OBSTACLES:		
3	Select the **All** option button.	All obstacles are toggled on and are shown on the SA display.
TO HIDE ALL OBSTACLES:		
4	Select the **None** option button.	All obstacles are toggled off and are not shown on the SA display.
TO DELETE OBSTACLE INFORMATION:		
5	Select one or more rows.	The selected rows are highlighted.
6	Select the **Delete Selected** button.	The selected rows are deleted.
TO UPDATE OBSTACLE INFORMATION RECEIVED WHILE THE FILTERS FUNCTION IS ACTIVE:		
7	Select the **Refresh** button.	All "Obstacle Overlay" messages received are displayed.
TO EXIT FILTERS FUNCTIONS:		
8	Select the **Close** button.	The "Filters" dialog box closes.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Message Defaults. The **F4 Messages...** button contains options that allow the user to choose message default options and to add/delete addresses. Follow Unit SOP when pre-setting message defaults and editing address groups.

NOTE

To be able to send FBCB2 messages quickly, default message options and address groups should be set up in advance of your mission. Each message sub-type must be set up separately.

Set Default Message Addressing. The **Set Default Message Addressing...** button provides access to the functions that allow the user to customize transmission default settings for a selected message sub-type. The following table shows the procedures to follow for presetting default message options.

Table 37. Set Default Message Addressing

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Ops Function Bar on the FBCB2 Display Process screen:		
1	Select the **F4 Messages...** button.	The “Messages” dialog box is displayed.
2	Select the **Create** tab group.	The "Create" tab group is displayed.
3	Select one of the **Msg Type** option boxes.	The selected option button is highlighted and the related filenames are displayed.
4	Select a message filename.	The selected message filename is highlighted.
5	Select the **Set Default Message Addressing...** button.	The "Message Addressing" dialog box is displayed.
6	Select the **Message Settings** tab group.	The "Message Settings" tab group is displayed.
TO SELECT THE MESSAGE PRECEDENCE:		
7	Select a **Precedence** option button.	The selected option button is highlighted.
8	Select the **Apply** button.	The selections are applied.
TO SELECT THE MESSAGE ACKNOWLEDGMENT:		
9	Select one or more **Acknowledge** check boxes.	A check mark is displayed in the selected check boxes.
10	Select the **Apply** button.	The selections are applied.
TO EXIT MESSAGE ADDRESSING:		
11	Select the **Close** button.	The "Message Addressing" dialog box closes.
TO EXIT MESSAGES FUNCTIONS:		
12	Select the **Close** button.	The "Messages" dialog box closes.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Addresses Tab Group. The **Addresses** tab group is used to add/delete addresses to the message Action Addressee list and/or the Information (Info) Addressee list. Follow Unit SOP when pre-setting your addressees. The following table shows the procedures to add/delete addresses.

NOTE

To be able to quickly send your Command and Control (C2) messages, the Addressee-lists for each FBCB2 message sub-type must be set up in advance. Certain pre-defined User Address Groups may already be entered based upon your particular role. Check your role-based message types to ensure that the Addressee-lists are correct/complete for your particular mission.

Table 38. Addresses Tab Group

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Ops Function Bar on the FBCB2 Display Process screen:		
1	Select the **F4 Messages...** button.	The “Messages” dialog box is displayed.
2	Select the **Create** tab group.	The "Create" tab group is displayed.
3	Select one of the **Msg Type** option boxes.	The selected option button is highlighted and the related filenames are displayed.
4	Select a message filename.	The selected message filename is highlighted.
5	Select the **Set Default Message Addressing...** button.	The "Message Addressing" dialog box is displayed.
6	Select the **Addresses** tab group.	The "Addresses" dialog box is displayed.
7	Select the **Select From: down arrow** button.	The "Select From:" option list is displayed.
8	Select an option.	The selection is displayed in the "Select From:" text box.
TO SEARCH FOR AN ADDRESS:		
9	Select the **Search** text box.	The "Search" text box is highlighted.
10	Enter an address.	The address is displayed in the "Search" text box.
11	Select the **Search** button.	The system will auto-search the list and highlight the selected address.
TO ADD AN ADDRESS TO THE ACTION LIST:		
12	Select the **Addresses down arrow** button.	The "Addresses" option list is displayed.
13	Select the "Action Addresses" option.	The selection is displayed in the "Addresses" box.
14	Select an address from the **Address** list.	The selected address is highlighted.
15	Select the **Add** button.	The selected address is added to the Action list.
16	Select the **Apply** button.	The "Apply" dialog box closes.
TO DELETE ADDRESSES FROM THE ACTION LIST:		
17	Select an address from **Action Addresses** list.	The selected address is highlighted.
18	Select the **Delete** button.	The selected address is removed.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Table 38. Addresses Tab Group–Continued

STEP	OPERATOR ACTION	INDICATION OR CONDITION
TO DELETE ALL ACTION ADDRESSES:		
19	Select the **Delete All** button.	All addresses on the Action list are removed.
TO ADD AN ADDRESS TO THE INFO LIST:		
20	Select the **Addresses down arrow** button.	The "Addresses" option list is displayed.
21	Select the "Info Addresses" option.	The selection is displayed in the "Addresses" box.
22	Select an address from the **Address** list.	The selected address is highlighted.
23	Select the **Add** button.	The selected address is added to the Info list.
24	Select the **Apply** button.	The "Apply" dialog box closes.
TO DELETE ADDRESSES FROM THE INFO LIST:		
25	Select an address from **Info Addresses** list.	The selected address is highlighted.
26	Select the **Delete** button.	The selected address is removed.
TO DELETE ALL INFO ADDRESSES:		
27	Select the **Delete All** button.	All addresses on the Info list are removed.
TO EXIT MESSAGES ADDRESSING:		
28	Select the **Close** button.	The "Message Addressing" dialog box closes.
TO EXIT MESSAGES FUNCTIONS:		
29	Select the **Close** button.	The "Messages" dialog box closes.

Admin Settings. The **F6 Admin...** button contains options that allow the user to customize the following pre-sets: Platform Location, MEDEVAC, Local, and SA Settings.

NOTE

Selecting only the "OK" button performs the same function as first selecting the "Apply" button and then selecting the "Close" button.

Platform Location Settings. The **Location** text box in **Platform Settings** tab group provides options that enable setting the Platform Grid Location, "Quality" of the Location, and Vehicle "Course, Speed, Elevation/Altitude". The following table provides the procedures for the "Location" settings.

NOTE

If the platform’s Global Positioning System (GPS) initialization fails and/or the GPS is not responding, operators may need enter their own location information for the Military Grid Reference System (MGRS) coordinates.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Table 39. Platform Location Settings

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Ops Function Bar on the FBCB2 Display Process screen:		
1	Select the **F6 Admin...** button.	The "Admin" dialog box is displayed.
2	Select the **Platform Settings** tab group.	The "Platform Settings" tab group is displayed.
3	Select the **Location** tab.	The "Location" tab group is displayed.
TO SELECT A POINT ON THE MAP:		
4	Select the **Location** text box.	The "Location" text box is highlighted and a blinking cursor is displayed.
5	Enter a grid location or select the Map option from the **down arrow** button.	The grid location is displayed in the "Location" text box or the cursor is displayed as crosshairs.
6	Select a point on the SA map display.	The selected grid location is displayed in the "Location" text box.
TO ENTER YOUR MGRS COORDINATES:		
7	Select the **Quality down arrow** button.	The "Quality" options list is displayed.
8	Select an option from the list.	The selected option is displayed in the "Quality" text box.
9	Select the **Course** text box.	The "Course" text box is highlighted and a blinking cursor is displayed.
10	Enter the course direction.	The data is displayed in the "Course" text box.
11	Select the **Speed** text box.	The "Speed" text box is highlighted and a blinking cursor is displayed.
12	Enter the vehicle speed.	The data is displayed in the "Speed" text box.
13	Select the **Elevation** (or Altitude) text box.	The "Elevation" (or "Altitude") text box is highlighted and a blinking cursor is displayed.
14	Enter the elevation (or altitude).	The data is displayed in the "Elevation" (or "Altitude") box.
15	Select the **OK** button.	The changes are applied and the "Admin" dialog box closes.

Data Net Frequency and Radio Set ID. The **Misc** tab in the **Platform Settings** tab group displays both the "DATA NET FREQUENCY" for the SINCGARS ASIP and the "RADIO SET ID" for the EPLRS (if installed). To enable FBCB2 communications for your particular Unit/Role, verify that the Data Net Frequency loaded into the SINCGARS and the Radio Set ID loaded into the EPLRS are the same as displayed for the FBCB2 software.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

MEDEVAC Settings. The **Misc** tab in the **Platform Settings** tab group provides access to the text boxes used to enter the necessary MEDEVAC "Requestor's Call Sign" and MEDEVAC "Voice Net Frequency". This information will be provided prior to your mission, normally from the current Standard Operating Instructions (SOI). The following table provides the procedures for MEDEVAC settings.

NOTE

If the Requestor's Call Sign and the Voice Net Frequency are not filled in beforehand, the user will not be able to send a MEDEVAC Combat Message.

Table 40. MEDEVAC Settings

STEP	OPERATOR ACTION	INDICATION OR CONDITION
From the Ops Function Bar on the FBCB2 Display Process screen:		
1	Select the **F6 Admin...** button.	The "Admin" dialog box is displayed.
2	Select the **Platform Settings** tab group.	The "Platform Settings" tab group is displayed.
3	Select the **Misc** tab.	The "Misc" tab group is displayed.
4	Select the **MEDEVAC** "Requestor's Call Sign:" text box.	The "Requester's Call Sign" text box is highlighted and a blinking cursor is displayed.
5	Enter your **MEDEVAC** Call Sign data.	The data is displayed in the MEDEVAC "Requestor's Call Sign:" text box.
6	Select the **MEDEVAC** "Voice Net Frequency:" text box.	The "Voice Net Frequency:" text box is highlighted and a blinking cursor is displayed.
7	Enter your Net Frequency.	The data is displayed in the MEDEVAC "Voice Net Frequency:" text box.
8	Select the **OK** button.	The changes are applied and the "Admin" dialog box closes.

Local Settings. The **Local Settings** tab group is used to set the following: audio alerts, voice alerts, the chemical/biological message auto send feature, reminders, and message send warnings. It is also used to set the "Warning Time Interval" and "Local Time Zone" options. All local settings are defaulted, and therefore need not be pre-set by the user. Follow Unit SOP when changing any defaults. Refer to the embedded Software Users Manual (SUM) for additional information.

SA Settings. The **SA Settings** tab group is used to set time and motion filters that affect how icons (i.e., "Own", "Friendly", "Observed", and "Air") are displayed on the Situational Awareness (SA) map. All of these SA settings are defaulted, and therefore need not be pre-set by the user. Since the use of down arrows and option buttons is the same as the Soldier-Machine Interface (SMI) used for the settings located under the **F1 Map...** and **F2 Filters...** buttons, these procedures are not repeated in this section. Follow applicable Unit SOP when changing any defaults. Refer to the embedded Software Users Manual (SUM) for additional information.

NOTE

Since different Situational Awareness (SA) filter options may change the features of the SA map displayed, follow applicable Unit SOP when re-setting any filters.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Mission Data Download/Upload. This section consists of procedures for downloading mission data to the DTD/MDL and uploading the mission data to a AN/UYK-128(V) Computer. Startup the AN/UYK-128(V) Computer. After login, connect the MDL/DTD to the AN/UYK-128(V) Processor Unit (J5 connector) or Display Unit (disconnect Keyboard Unit from J2 of the DU and connect the MDL/DTD to the J2 connector). Refer to WP 0005 00 PERIPHERAL EQUIPMENT SET UP for the various MDL/DTD connections that can be made to a computer.

NOTE

When connecting the DTD/MDL to the AN/UYK-128(V) DU, the AN/UYK-128(V) Computer must be powered up and at the Session Manager screen. After disconnecting the DTD/MDL and reconnecting the KU to the DU, reboot the AN/UYK-128(V) Computer IAW WP 0005 00, Table 22, as necessary for the PU to recognize the KU.

Mission Data Download. The following table provides the procedure for downloading the mission data to the DTD/MDL from an AN/UYK-128(V) Computer or TOUGHBOOK Computer.

Table 41. Mission Data Download

STEP	OPERATOR ACTION	INDICATION OR CONDITION
1	From the Session Manager screen select the Start button.	The Start option menu is displayed.
2	Select the FBCB2 option.	The FBCB2 option menu is displayed.
3	Select the Mission Data Load option.	The Mission Data Load option menu is displayed.
4	Select the Create MDL option.	The Mission Data Create dialog box is displayed.
5	Select a data file from the Available Data Files: pane.	The selected file name is highlighted.
6	Select a folder name from the Current Missions: pane.	The selected folder name is highlighted.
7	Select the Add Data File button.	The data file is copied to the Current Missions: pane.
8	Select the Write Mission to MDL… button.	The Write Mission dialog box is displayed.
9	Select the down arrow.	System displays the option list.
10	Select an option, Portable Media or Local Drive.	If the Portable Media option is selected; the system displays the Media Check dialog box. If Local Drive option is selected; the option list closes and the selected option is displayed in the text box.
11	If Portable Media option was selected; select the Yes button.	The Media Check dialog box closes.
12	Select the OK button.	The Write Mission dialog box is displayed with successful status.
13	Select the OK button.	The Write Mission dialog box closes.

OPERATING PROCEDURES–Continued

FBCB2 PRE-MISSION SOFTWARE CHECKLIST–Continued

Mission Data Upload. The following table provides the procedure for loading the mission data to an AN/UYK-128(V) Computer or TOUGHBOOK Computer from the DTD/MDL.

Table 42. Mission Data Upload

STEP	OPERATOR ACTION	INDICATION OR CONDITION
1	From the Session Manager screen select the Start button.	The Start option menu is displayed.
2	Select the FBCB2 option.	The FBCB2 option menu is displayed.
3	Select the Mission Data Load option.	The Mission Data Load option menu is displayed.
4	Select the Install MDL option.	The Mission Data Extractor/Installer dialog box is displayed.
5	Select the Media down arrow.	System displays the Media option list.
6	Select an option.	Option list closes and the selected option is displayed in the Media text box.
7	Select a folder name from the Missions on MDL: pane.	The selected folder name is highlighted.
8	Select a folder name from the Mission Extracted: pane.	The selected folder name is highlighted.
9	Select the Extract button.	The system will copy the selected file from the Missions on MDL: pane to the Mission Extracted: pane and display the Extract Successful! Dialog box.
10	Select the OK button.	The Extract Successful! dialog box closes.
11	Select the Install button.	The system will display the Install? confirmation dialog box.
12	Select the Yes button.	The Install? dialog box closes and the system displays the Install Complete! dialog box.
13	Select the OK button.	The Install Complete! dialog box closes.
14	Select the Close button.	The Mission Data Extract/Installer dialog box closes.

PREPARATION FOR MOVEMENT

ADJUSTING DU FOR OPTIMAL DRIVERS FIELD-OF-VIEW

This section describes potential driver vision obstructions associated with the Display Unit (DU) of the AN/UYK-128(V) Computer. The risk of improperly positioning the DU is reduced through labeling, training, and Technical Manual (TMs). The procedural controls, as presented in this manual, are enforced by Unit SOP and regulations.

Hazard Description. Several platforms equipped with the AN/UYK-128(V) Computer have the Display Unit (DU) installed within the vehicle cab between the driver and passengers positions for viewing by both the driver and the commander. The Display Unit (DU) mount has been located and designed so that it can be aligned within the existing visual obstructions of a particular vehicle. When positioned properly, the DU causes minimal or no degradation to the driver's Field-Of-View (FOV) through the passenger side window and windshield. However, a potential hazard is created if the DU is incorrectly positioned so that the driver's FOV is obstructed, which could lead to a vehicular accident. The platforms currently affected are: HMMWV, HMMWV Ambulance, M548 VOLCANO, M939 5-ton truck, M35 $2\frac{1}{2}$-ton truck, and the HEMTT/PLS.

WARNING

Vehicle Specific: M35 2.5 Ton Truck, All HMMWV's variants (except 1031, Ambulance, and Avenger)
FBCB2 display may obstruct Driver's Field of View. To maximize driver field of view:

1. Slide FBCB2 display down using four wing-nuts at rear of display.
2. Push display toward front and align with passenger-side door hinge.

WARNING

Vehicle Specific: FMTV/LMTV
FBCB2 display may obstruct Driver's Field of View. To maximize driver field of view:

1. Slide FBCB2 display up using four wing-nuts at rear of display.
2. Minimize display profile by aligning side of display with A-Pillar between passenger window and windshield.

WARNING

Vehicle Specific: All HMMWV variants, ACE, M548 VOLCANO, HET, M93A1 Fox, HEMTT, 2 1/2-Ton Truck, 5-Ton Truck
Drivers viewing display while operating vehicle may result in personnel hazards/equipment damage. Drivers should not view display while vehicle is in motion, unless otherwise dictated by Standard Operating Procedures (SOP) unique to that platform. Failure to comply may result in injury to personnel or equipment damage.

PREPARATION FOR MOVEMENT–Continued

ADJUSTING DU FOR OPTIMAL DRIVERS FIELD-OF-VIEW–Continued

WARNING

Vehicle Specific: HEMTT, M35 2 1/2-Ton Truck, All HMMWV variants (except 1031 and Avenger)
Display Unit (DU) may obstruct view of front windshield, side window and/or side mirror. Maximize driver Field-Of-View (FOV) by adjusting and aligning the display with the A-Pillar prior to vehicle operation. Failure to comply may result in injury to personnel.

WARNING

Vehicle Specific: M548 A3 VOLCANO
Display Unit (DU) may obstruct view of front windshield if not properly adjusted. Maximize driver Field-Of-View (FOV) by positioning the Display Unit (DU) below the windshield as much as possible. Failure to comply may result in injury to personnel.

WARNING

Vehicle Specific: All installations with a RAM-Ball
A pinch hazard to the fingers or hands may occur between the RAM Ball socket arm and the RAM Ball. Extreme care should be used when adjusting the Display Unit (DU). Failure to comply may result in injury to personnel.

WARNING

Vehicle Specific: DEUCE
FBCB2 display mount may loosen, causing display to lower and contact personnel. Periodically adjust display position and ensure RAM-Ball adjustment knob (located behind display) is securely tightened.

CAUTION

Vehicle Specific: All installations with a RAM-Ball

Ensure support is provided to the Display Unit (DU) while loosening the RAM ball knob. Failure to comply may result in the DU falling from the RAM Ball mount, causing equipment damage.

PREPARATION FOR MOVEMENT–Continued

ADJUSTING DU FOR OPTIMAL DRIVERS FIELD-OF-VIEW–Continued

ADJUSTING DU PROCEDURE

1. Loosen the RAM-Ball knob while providing support to Display Unit.
2. Position Display Unit for optimal Driver's Field of View. See the following figures for examples.
3. Tighten the RAM-Ball knob.

HMMWV with Integrated Rack. The following figure depicts the proper alignment of the Display Unit (DU) in HMMWVs equipped with the Integrated rack. The DU must be lowered and positioned in line with the forward edge of the passenger door and the A-pillar, thereby maximizing the driver's Field-Of-View (FOV) through the windshield and side window. The DU configuration in the VOLCANO is similar to that shown in the following figure. The passenger can still view the display screen with the DU adjusted optimally for the driver's FOV. Follow applicable precautions when adjusting the DU with the RAM Ball Mount.

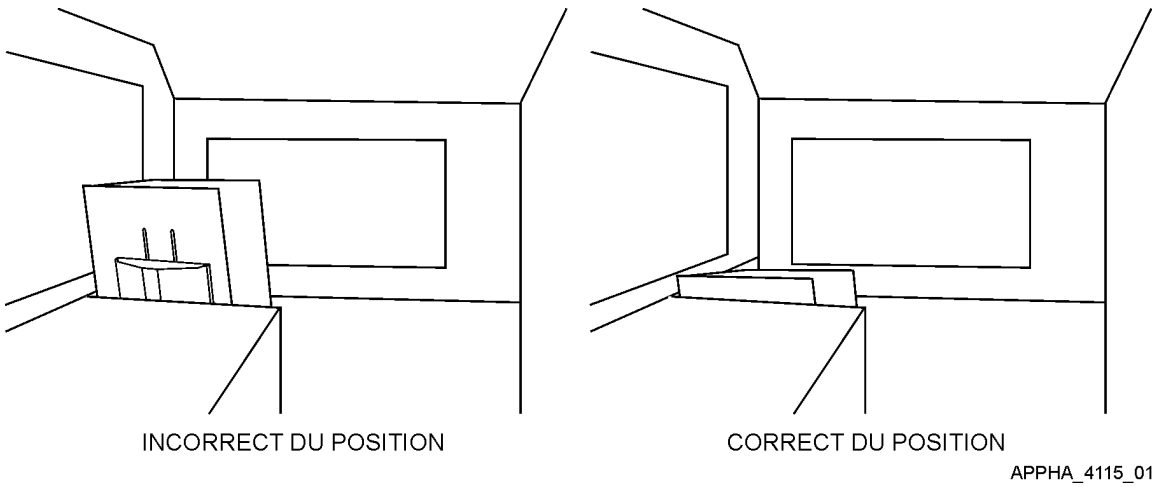


Figure 11 **Driver's Field-Of-View (In HMMWV With I-Rack)**

PREPARATION FOR MOVEMENT–Continued

ADJUSTING DU FOR OPTIMAL DRIVERS FIELD-OF-VIEW–Continued

HEMTT/PLS Platforms. In the case of the HEMTT/PLS platforms, the Display Unit (DU) is mounted from the ceiling and can be raised to ensure that the driver can clearly see underneath the DU without it causing a Field-Of-View (FOV) obstruction. See Figure 12 . The passenger can still view the display screen with the DU adjusted optimally for the driver's FOV. Follow applicable precautions when adjusting the DU with the RAM Ball Mount.

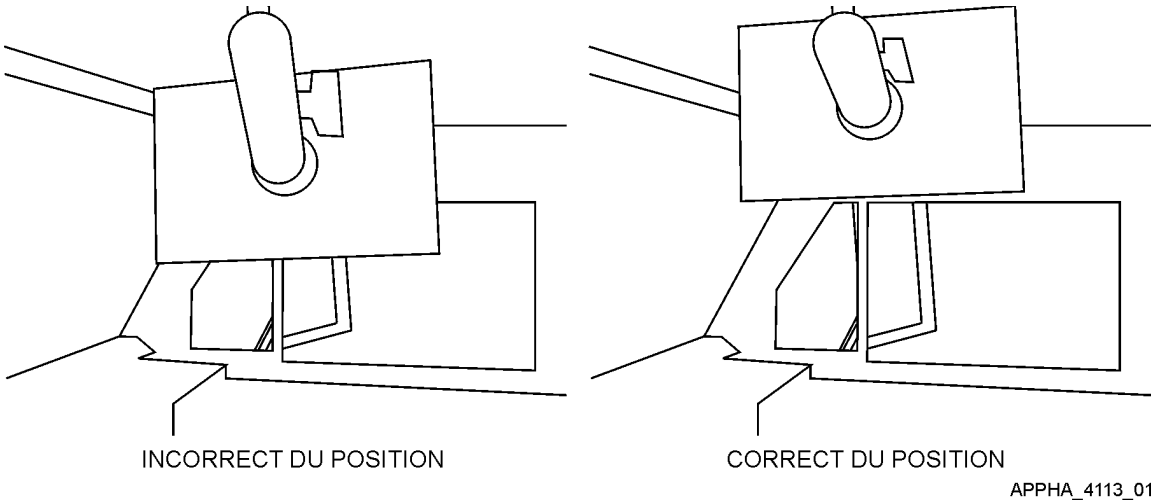


Figure 12 **Driver's Field-Of-View (In HEMTT/PLS)**

HMMWV Ambulance. The following figure depicts the proper alignment of the Display Unit (DU) in the HMMWV ambulance. The DU must be lowered and positioned in line with the forward edge of the passenger door and the A-pillar, thereby maximizing the driver's Field-Of-View (FOV) through the windshield and side window. The passenger can still view the display screen with the DU adjusted optimally for the driver's FOV. Follow applicable precautions when adjusting the DU with the RAM Ball Mount.

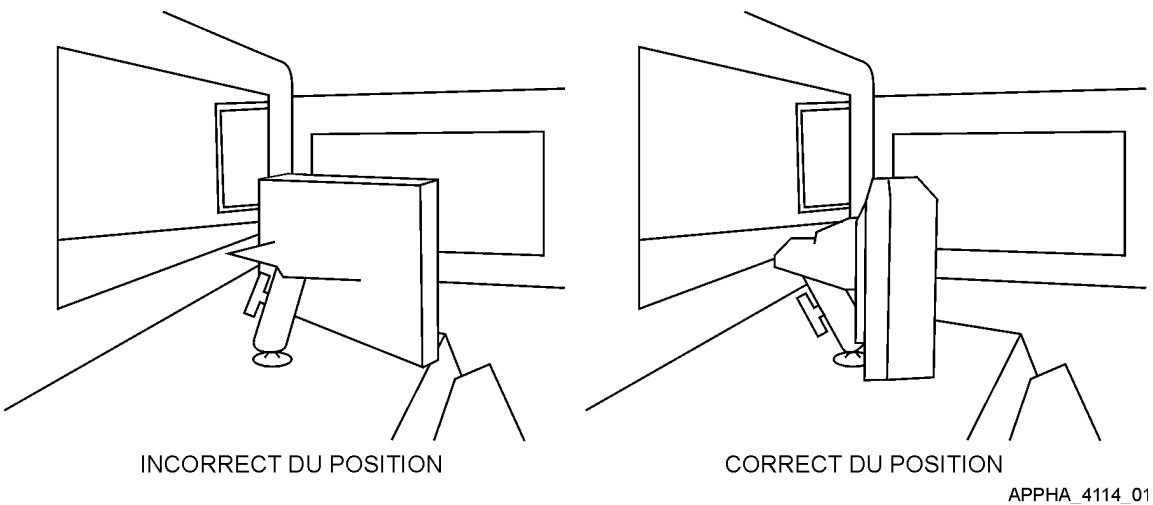


Figure 13 **Driver's Field-Of-View (In HMMWV Ambulance)**

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

OPERATION UNDER UNUSUAL CONDITIONS

INITIAL SETUP:

WARNING

Sudden vehicle accelerations from operation in rough terrain, sudden stops or vehicle mishap may cause loose or damaged hardware to become a projectile. Ensure system components are properly secured. Internal projectiles could cause serious injury to personnel and can damage or destroy equipment.

CAUTION

Keep batteries away from extreme temperatures. The battery pack will not function as an Uninterruptable Power Supply (UPS) when the temperature of the batteries is outside of the -20°C to +55°C range. Failure to do so may result in equipment damage.

OPERATION UNDER UNUSUAL CONDITIONS

This work package describes the tasks performed by the equipment operator under unusual conditions. Unusual conditions are operating a fully mission capable AN/UYK-128(V) Computer in extremes of temperature, humidity, terrain and other unusual conditions. The equipment operator must apply special care as described.

ENVIRONMENT AND WEATHER

There is no impact to this equipment during operation in adverse weather conditions. The AN/UYK-128(V) Computer can operate continuously within a temperature range of - 25 to + 140 degrees F and a relative humidity range of 3 to 100 per cent. The computer components are sealed to minimize any adverse effect from water, sand and dust. Protection from prolonged or continuous exposure to the effects of adverse weather conditions will ensure the service life of this equipment.

FORDING AND SWIMMING

Follow the procedures outlined in the specific platform's operators manual. The AN/UYK-128(V) Computer requires no special procedures or preparations for conducting fording or swimming operations.

NBC DECONTAMINATION PROCEDURES

NOTE

Detailed DECON procedures can be found in FM 3-5, NBC Decontamination, and MIL-HDBK-783 (EA), Chemical and Biological Avoidance and Decontamination.

The following procedures are used to decontaminate yourself and the AN/UYK-128(V) Computer equipment that has been exposed as a result of an NBC attack. If an NBC attack is known or suspected, don Mission-Oriented Protective Posture (MOPP) gear per Standard Operating Procedures (SOP). Do not remove your MOPP gear until ordered to do so.

If NBC exposure is suspected, immediate action must be taken to decontaminate yourself and your equipment. Presented in the following paragraphs are the typical emergency procedures for biological/chemical and nuclear decontamination.

BIOLOGICAL/CHEMICAL DECONTAMINATION

If suspected of being contaminated by a Biological or Chemical attack, begin decontamination on yourself immediately. Use either the M291 or the M258A1 DECON kit. Next you must decontaminate your hood, mask, gloves, and weapon, using the M280 DKIE DECON kit or additional M291/M258A1 kit.

NUCLEAR DECONTAMINATION

Radiological contamination affects you differently, but the decontamination principle is the same. Remove contamination from yourself by brushing with soap and water, then rinsing with water.

AN/UYK-128(V) COMPUTER CHEMICAL DETECTION PROCEDURE

Perform check utilizing M8 Chemical detector paper from M256 chemical agent detector kit on the AN/UYK-128(V) Computer equipment as applicable to detect for any chemical contamination.

AN/UYK-128(V) COMPUTER DECONTAMINATION PROCEDURES

If AN/UYK-128(V) Computer equipment has been exposed to a Nuclear, Biological, or Chemical (NBC) attack, report to a decontamination point if possible. Within 1 to 6 hours of exposure, AN/UYK-128(V) Computer equipment should be washed down using Decontaminating Agent DS2. The longer you wait, the harder it will be to remove and neutralize contamination. The following procedures are recommended when washing down the AN/UYK-128(V) Computer equipment. Refer to FM 3-5, NBC Decontamination, and MIL-HDBK-783 (EA), Chemical and Biological Avoidance and Decontamination, for more information.

WARNING

Sudden vehicle accelerations from operation in rough terrain, sudden stops or vehicle mishap may cause loose or damaged hardware to become a projectile. Ensure system components are properly secured. Internal projectiles could cause serious injury to personnel and can damage or destroy equipment.

WARNING

During Nuclear, Biological, or Chemical (NBC) wash-down, DECON solution may become trapped under hidden surfaces causing a hazard to personnel. When using DECON solution follow proper SOP and ensure that all hidden surfaces have been decontaminated and thoroughly rinsed. Failure to comply may cause injury or death to personnel and damage to equipment.

NOTE

The AN/UYK-128(V) Computer hardware must be separated from the Installation Kit (I-Kit) and washed down thoroughly. The I-Kit itself must be separated from the platform and washed down thoroughly. DECON solution may leak between the Display Unit (DU) and the mounting plate, between the AN/UYK-128(V) Computer hardware and I-Kit components, or between the vehicle and the I-Kit.

1. Button up the AN/UYK-128(V) Computer equipment. This will prevent contamination from being washed into uncontaminated areas subjecting maintenance personnel to hazards.
2. Perform wash down of the AN/UYK-128(V) Computer equipment utilizing Decontaminating Agent DS2, starting at the top and washing downward. Decontaminating Agent DS2 should be sprayed directly onto all exterior equipment surfaces.
3. Check the AN/UYK-128(V) Computer equipment surfaces for residual chemical contamination using the Chemical Agent Monitor (CAM), M8/M9 Chemical detector paper, or the M256A1 Chemical Agent Detector Kit as applicable. Use the AN/PDR27 series or AN/VDR2 to determine if any radiological contamination remains.
4. Follow Decontaminating Agent DS2 handling procedures in accordance with the Material Safety Data Sheet (MSDS) provided by the U. S. Army Soldier and Biological Chemical Command (SBCCOM).

END OF WORK PACKAGE

CHAPTER 3

OPERATOR MAINTENANCE

TROUBLESHOOTING PROCEDURES

FOR

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2)

CHAPTER 3

OPERATOR MAINTENANCE TROUBLESHOOTING PROCEDURES

WORK PACKAGE INDEX

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

TROUBLESHOOTING INDEX

TROUBLESHOOTING INDEX

The purpose of the index is to provide a listing of equipment faults and/or indications and reference the appropriate work package to perform the necessary troubleshooting procedures. Perform the troubleshooting and corrective action as described.

Malfunction/Symptom — Troubleshooting Procedure

POWER TROUBLESHOOTING

LOSS OF DATE/TIME TROUBLESHOOTING

LOSS OF CONNECTIVITY TROUBLESHOOTING

PROCESSOR UNIT TEMPERATURE TROUBLESHOOTING

DISPLAY UNIT TEMPERATURE TROUBLESHOOTING

DISPLAY UNIT TROUBLESHOOTING

KEYBOARD UNIT TROUBLESHOOTING

Malfunction/Symptom | Troubleshooting Procedure

PROCESSOR UNIT BOOTUP/SOFTWARE TROUBLESHOOTING

INC TROUBLESHOOTING

MILSATCOM TROUBLESHOOTING

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

POWER TROUBLESHOOTING PROCEDURE

INITIAL SETUP:

TROUBLESHOOTING PROCEDURES INTRODUCTION

The purpose of troubleshooting is to isolate faults and perform steps to correct the problem. Isolating a problem to hardware or software will help to expedite repairs and reduce the time the AN/UYK-128(V) Computer is non-operational.

The following troubleshooting procedure list common symptoms and malfunctions that may be encountered while operating or servicing the AN/UYK-128(V) Computer.

Locate the particular symptom encountered and complete the corrective action steps in order. Following the corrective action steps will enable the equipment operator to solve common problems and malfunctions.

If a malfunction is not identified or cannot be solved by the troubleshooting procedure, call Unit Maintenance and record problems, faults or malfunctions on DA form 2404.

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

CAUTION

If the Circuit Breaker switch does not stay in the [**ON**] position when closed, do not attempt to close it repeatedly. Closing the Circuit Breaker Switch repeatedly can create an overload situation causing equipment damage. Notify Unit Maintenance if the Circuit Breaker Switch will not stay in the [**ON**] position. Failure to comply with caution could result in equipment damage.

CAUTION

Do not slave (jump start) a vehicle without first powering down the AN/UYK-128(V) Computer systems in both vehicles (where applicable). Failure to comply may result in equipment damage.

TROUBLESHOOTING PROCEDURE

POWER TROUBLESHOOTING

SYMPTOM

DU control and LED indicators are dark.

MALFUNCTION

No power to AN/UYK-128(V) Computer.

CORRECTIVE ACTION

1. Press display **BLKOUT LAMP**.
   a. System lights up - problem solved.
   b. Press again if lights do not come on (i.e., do not illuminate) and continue with the next step.
2. Press display **FCN** and **BRT+** buttons several times.
   a. LEDs light up - problem solved.
   b. LEDs remains dark - continue with next step.
3. Press DU **PWR** button for up to 4 seconds.
   a. System lights up - problem solved
   b. System remains dark - continue next step.
4. Verify W1 and W2 cables are properly connected. Continue with next step.
5. Reset PU circuit breaker/switch. Continue next step.
6. Press the DU **PWR** button for up to 4 seconds.
   a. If the green **PWR** LED lights up - problem solved.
   b. System remains dark, continue next step
7. Check specific platform: M1068/M113/M934/M1097 check SINCGARS ASIP for power. Ensure the AM7239 E/VRC VAA CB1 switch is set to ON. If external speaker LS 671/VRC is connected, make sure it is turned ON.
   a. Retry pressing DU **PWR** button for up to 4 seconds. If the green **PWR** LED lights up, problem solved. If not, proceed to step 10.
8. Check specific platform: Tracked Vehicles. Verify MCS System switch is set to one of the three program settings.
   a. Retry pressing DU **PWR** button for up to 4 seconds. If the green **PWR** LED lights up, problem solved. If not, proceed to step 10.
9. Check specific platform: Paladin - Verify Master Power switch is set to the ON position.
   a. Retry pressing DU **PWR** button for up to 4 seconds. If the green **PWR** LED lights up, problem solved. If not, proceed to step 10.
10. Start vehicle. Repeat steps 1 through 9 above.
    a. If the green **PWR** LED lights up, problem solved. If not, call Unit Maintenance.

SYMPTOM

DU red PWR LED is illuminated.

MALFUNCTION

AN/UYK-128(V) Computer is operating on PU battery power.

CORRECTIVE ACTION

NOTE

DU **PWR** red LED is illuminated indicating PU is operating on internal battery power. To save your data, perform the proper shut down.

1. Verify that power cable connected to J1 PWR on PU. Yes - continue with next step. No - call Unit Maintenance.
2. Verify vehicle does not have a power problem.
   a. Vehicle power shows amber. Start vehicle - problem solved. If not, continue.
   b. SINCGARS ASIP radio has power - call Unit Maintenance. If not, continue with step 3.
3. Set SINCGARS VAA Power CB1 switch to ON and the RS function switch to STBY or ON.
   a. SINCGARS ASIP RT display lights - call Unit Maintenance.
   b. SINCGARS ASIP radio system has no power - continue with next step.
4. Verify that vehicle switches/circuit breakers are set to ON.
   a. Vehicle switches/circuit breakers are set OFF - set them ON - repeat step 3.
   b. Vehicle switches/circuit breakers are set ON - call vehicle maintenance.

SYMPTOM

DU red PWR LED is blinking.

MALFUNCTION

AN/UYK-128(V) Computer is operating on reduced PU battery power.

CORRECTIVE ACTION

1. Start vehicle.
   a. If the green PWR LED lights up, problem solved. If not, call Unit Maintenance.

SYMPTOM

AN/UYK-128(V) Computer shuts down with loss of vehicle power.

MALFUNCTION

AN/UYK-128(V) Computer fails to switch to back-up power with the loss of vehicle power.

CORRECTIVE ACTION

NOTE

For PU NSN 7025-01-474-3793/NSN 7021-01-487-0578/NSN 7021-01-496-4263, press the diagnostic button on front of battery try twice.

1. Open PU access door and verify battery status on battery try/battery box.
2. Charge battery, problem solved. If not, call Unit Maintenance for the following conditions:
   a. PU NSN 7025-01-474-3793/NSN 7021-01-487-0578/NSN 7021-01-496-4263, code 05 is displayed.

CORRECTIVE ACTION–Continued

b. PU NSN 7025-01-475-0217/NSN 7021-01-487-0579/NSN 7021-01-496-2126, less than three LCD bars displayed.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

LOSS OF DATE/TIME TROUBLESHOOTING PROCEDURE

INITIAL SETUP:

TROUBLESHOOTING PROCEDURES INTRODUCTION

The purpose of troubleshooting is to isolate faults and perform steps to correct the problem. Isolating a problem to hardware or software will help to expedite repairs and reduce the time the AN/UYK-128(V) Computer is non-operational.

The following troubleshooting procedure list common symptoms and malfunctions that may be encountered while operating or servicing the AN/UYK-128(V) Computer.

Locate the particular symptom encountered and complete the corrective action steps in order. Following the corrective action steps will enable the equipment operator to solve common problems and malfunctions.

If a malfunction is not identified or cannot be solved by the troubleshooting procedure, call Unit Maintenance and record problems, faults or malfunctions on DA form 2404.

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

WARNING

PLGR battery may leak or explode if left inside PLGR while PLGR is connected to external power. Ensure PLGR battery is removed from PLGR prior to connecting PLGR to external power. Failure to comply may result in injury to personnel or damage to equipment.

CAUTION

Do not connect or disconnect the PLGR interface cable without first powering down the AN/UYK-128(V) Computer and PLGR. Failure to comply will result in equipment damage.

TROUBLESHOOTING PROCEDURE

LOSS OF DATE/TIME TROUBLESHOOTING

SYMPTOM

GPS status gumball is coded as R (i.e., red)

MALFUNCTION

DU of AN/UYK-128(V) Computer indicates loss of both Date/Time Group (DTG) and platform location.

CORRECTIVE ACTION

1. Select **F5 Status...** button on the Ops Main Screen.
   a. Open **GPS** folder and check **Time**, **Position**, and **Heading** status.
   b. If any one of the three display a **Go** status, proceed to step 3.
   c. If all are **No Go** status, proceed to step 2.
2. PLGR indicates correct DTG and location.
   a. Shut down AN/UYK-128(V) Computer and set circuit breaker/switch to OFF.
   b. Ensure PLGR has an almanac age of at least 3 days, a TFOM of 5 or less, and a FOM of 4 or less. If not, proceed to step 3. If correct continue.
   c. Shut down PLGR.
   d. Check W3P serial interface connection to PLGR J2. If loose, hand tighten cable.
   e. Check remote PLGR antenna cable connection to antenna. If loose, tighten cable.
   f. Startup the PLGR.
   g. Set circuit breaker/switch to ON and startup AN/UYK-128(V) Computer.
   h. After startup, AN/UYK-128(V) Computer indicates time/location - problem resolved.
   i. After startup, AN/UYK-128(V) Computer does not indicate time/location - call Unit Maintenance.
3. PLGR does not indicate correct DTG and location.
   a. Ensure PLGR is setup properly (e.g., Setup mode: CONT, SV-TYPE; ALL-Y, SETUP UNITS L/LDMS). If not, apply correct settings - problem solved. If not, continue with next step.
   b. Shut down AN/UYK-128(V) Computer and set circuit breaker/switch to OFF.
   c. Shut down PLGR.
   d. Remove PLGR from its mount.
   e. Disconnect power cable, antenna cable, and serial data cable from PLGR.
   f. Install battery in PLGR (see WARNING)
   g. Position PLGR outside of platform.
   h. If PLGR indicates correct DTG and location, then problem with platform antenna or antenna cable - call Unit Maintenance.
   i. If PLGR does not indicate correct DTG and location, then problem is with PLGR - call Unit Maintenance.
   j. Remove battery from inside of PLGR and reinstall PLGR back on its mount (see WARNING).

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

LOSS OF CONNECTIVITY TROUBLESHOOTING PROCEDURE

INITIAL SETUP:

TROUBLESHOOTING PROCEDURES INTRODUCTION

The purpose of troubleshooting is to isolate faults and perform steps to correct the problem. Isolating a problem to hardware or software will help to expedite repairs and reduce the time the AN/UYK-128(V) Computer is non-operational.

The following troubleshooting procedure list common symptoms and malfunctions that may be encountered while operating or servicing the AN/UYK-128(V) Computer.

Locate the particular symptom encountered and complete the corrective action steps in order. Following the corrective action steps will enable the equipment operator to solve common problems and malfunctions.

If a malfunction is not identified or cannot be solved by the troubleshooting procedure, call Unit Maintenance and record problems, faults or malfunctions on DA form 2404.

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

CAUTION

If the Circuit Breaker switch does not stay in the [**ON**] position when closed, do not attempt to close it repeatedly. Closing the Circuit Breaker Switch repeatedly can create an overload situation causing equipment damage. Notify Unit Maintenance if the Circuit Breaker Switch will not stay in the [**ON**] position. Failure to comply with caution could result in equipment damage.

CAUTION

Do not slave (jump start) a vehicle without first powering down the AN/UYK-128(V) Computer systems in both vehicles (where applicable). Failure to comply may result in equipment damage.

TROUBLESHOOTING PROCEDURE

LOSS OF CONNECTIVITY TROUBLESHOOTING

SYMPTOM

Comm Status gumball is A (i.e., amber) or R (i.e., red) and/or Icons are stale.

MALFUNCTION

Message data not transmitted or received.

CORRECTIVE ACTION

NOTE

Ensure that system has had enough time to enter the network.

NOTE

Before proceeding with the following procedure, check to ensure that nothing is directly blocking the EPLRS or SINCGARS antennas. Remember that both EPLRS and SINCGARS ASIP reception are Line-Of-Sight (LOS). If your vehicle is positioned where LOS is blocked by buildings, trees, or elevated terrain, your platform may need to move to a better location.

NOTE

The Comm Status gumball may be coded as A (i.e., amber) if you are the only one in the net. If your Unit/Role is generic or incorrect, the Comm Status gumball may be coded as G (i.e., green) and you will not receive your own Command and Control (C2) messages.

1. Select the **F5 Status...** button on the Ops Main Screen.
2. Open **Local Comm** folder and check router status.
   a. If router status shows **Degraded** or **No Go**, open router folder.
   b. Proceed to step 3 if PPP is **No Go**
   c. Proceed to proper symptom if SINCGARS status is **No Go**
   d. Proceed to proper symptom if EPLRS status is **No Go**
3. Router file indicates PPP status of **No Go**
   a. Open Router file and verify PPP status. If PPP status is **No Go**, continue.
   b. If PPP status is **Go**, proceed to SINCGARS status is **No Go** symptom.
   c. Verify W3 is properly connected to J6 connector on the INC. If properly connected, continue. If not, shut down INC and AN/UYK-128(V) Computer. Properly connect cables. Startup INC and AN/UYK-128(V) Computer. Wait 2 to 3 minutes - problem solved. If not, continue.
4. Perform the procedure to clear INC.

SYMPTOM

SINCGARS status is Degraded.

MALFUNCTION

SINCGARS radio status is **Degraded** or not receiving SA data or C2 messages.

CORRECTIVE ACTION

NOTE

Applies only to those platforms equipped with the SINCGARS ASIP radio.

1. Expand the SINCGARS file to show Interface, Net ID/Frequency and Packet mode status.
   a. Proceed to step 2 for Interface **Degraded** status.
   b. Proceed to step 3 for Net ID/Frequency **Degraded** status.
   c. Proceed to step 4 for Packet mode **Degraded** status.
   d. If all indicate **Go**, proceed to step 5.
2. SINCGARS file Interface status is **Degraded**.
   a. Ensure the SINCGARS ASIP is in channel one. Check W4 to ensure that cable is properly connected to the corresponding connector (i.e., R/T Radio A to Data A connector on INC). If not, correct and verify status - problem solved.
   b. Check Julian date/time. If incorrect, set correct date/time and frequency and verify status - problem solved.
   c. Perform voice check. If unable to communicate, proceed to step 6.
   d. If Julian date/time is correct, call Unit Maintenance. If not, proceed.
3. SINCGARS file Net ID/Frequency status is **Degraded**.
   a. Check Admin/Platform/Misc - DATA NET FREQUENCY Settings to ensure hopset matches hopset on SINCGARS ASIP.
4. SINCGARS Packet file status is **Degraded**
   a. Check SINCGARS ASIP setup (e.g., chan 1, Cipher Text (**CT**), frequency hop, Packet Mode (**PCKT**), frequency). If not properly setup, apply correct settings and verify status- problem solved.
   b. R/T radio setup properly, proceed.
5. Check COMSEC load.
   a. If a fill is needed, load COMSEC Crypto per SINCGARS TM.
   b. If COMSEC load is good, proceed to step 6.
6. Check radio(s) antenna(s) for damage and placement. (Antennas should not be stowed, or tied down.)
   a. Untie antenna(s) and recheck system for data transmit/receive capability. If OK, problem solved.
   b. Antenna(s) damaged or up and in good condition. - Call Unit Maintenance and report conditions.

SYMPTOM

SINCGARS radio status is **No Go**.

MALFUNCTION

SINCGARS Radio is a **No Go** or not receiving SA data or C2 messages.

CORRECTIVE ACTION

NOTE

Applies only to those platforms equipped with the SINCGARS ASIP radio.

NOTE

If the SINCGARS ASIP radio is taken out of packet mode after communications have been established, the SINCGARS status will become **No Go**.

1. Expand the SINCGARS file to show Interface, Net ID/Frequency and Packet mode status.
   a. Proceed to step 2 for Interface **No Go** status.
   b. Proceed to step 3 for Net ID/Frequency **No Go** status.
   c. Proceed to step 4 for Packet mode **No Go** status.
   d. If all indicate **Go**, proceed to step 6.
2. SINCGARS file Interface status is **No Go**.
   a. Check W4 to ensure cable is properly connected to corresponding connector.
   b. Check Admin/Platform/Misc Settings to ensure the correct radio set up (i.e., FBCB2 System displays either Radio A or Radio B).
   c. Ensure the SINCGARS radio is in packet mode.
   d. Check Julian date/time. If incorrect, set correct date/time and frequency and verify status - problem solved.
   e. If Julian date/time is correct, call Unit Maintenance.
3. SINCGARS file Net ID/Frequency status is **No Go**.
   a. Check Admin/Platform/Misc - DATA NET FREQUENCY Settings to ensure hopset matches hopset on SINCGARS ASIP.
4. SINCGARS Packet file status is **No Go**.
   a. Check SINCGARS ASIP setup (e.g., chan 1, Cipher Text (**CT**), frequency hop, Packet Mode (**PCKT**), frequency). If not properly setup, apply correct settings and verify status- problem solved.
   b. R/T radio setup properly, proceed.
5. Check COMSEC load.
   a. If a fill is needed, load COMSEC Crypto per SINCGARS TM.
   b. If COMSEC is good, proceed with next step.
6. Check radio(s) antenna(s) for damage and placement. (Antennas should not be stowed, or tied down.)
   a. Untie antenna(s) and recheck system for data transmit/receive capability. If OK, problem solved.
   b. Antenna(s) damaged or up and in good condition. - Call Unit Maintenance.

SYMPTOM

EPLRS status LCNs indicate **No Go** or **Not Tested**.

MALFUNCTION

EPLRS Alarm Light and Out of Net Light illuminated.

CORRECTIVE ACTION

NOTE

Applies only to those platforms equipped with EPLRS radio.

NOTE

Ensure that EPLRS has had enough time to enter the radio network.

1. Check to ensure COMSEC is keyed. If not, call Unit Maintenance.
2. EPLRS **OUT OF NET** light blinks once every second (i.e., cannot find network).
   a. Check to ensure antenna is connected
   b. Check to ensure that COMSEC is keyed.
   c. Perform test with URO to verify that an @S (or an @C) is returned. If @0 displayed, load COMSEC Crypto.
3. EPLRS **OUT OF NET** light blinks once every 4 seconds (i.e., unit is in track net). EPLRS will automatically and continuously attempt to join the net. No operator actions required.
4. Use the URO to verify status of EPLRS. If unable to fix, call Unit Maintenance.

SYMPTOM

EPLRS status ANTENNA indicates **No Go** or **Not Tested**.

MALFUNCTION

EPLRS status **No Go** or not receiving SA or C2.

CORRECTIVE ACTION

1. Expand EPLRS file to show LCN and Antenna mode status.
2. Check antenna placement and ensure you have good line-of-sight.
3. Check antenna for damage and connections.
4. If antenna checks OK, call unit Maintenance.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

PROCESSOR UNIT TEMPERATURE TROUBLESHOOTING PROCEDURE

INITIAL SETUP:

TROUBLESHOOTING PROCEDURES INTRODUCTION

The purpose of troubleshooting is to isolate faults and perform steps to correct the problem. Isolating a problem to hardware or software will help to expedite repairs and reduce the time the AN/UYK-128(V) Computer is non-operational.

The following troubleshooting procedure list common symptoms and malfunctions that may be encountered while operating or servicing the AN/UYK-128(V) Computer.

Locate the particular symptom encountered and complete the corrective action steps in order. Following the corrective action steps will enable the equipment operator to solve common problems and malfunctions.

If a malfunction is not identified or cannot be solved by the troubleshooting procedure, call Unit Maintenance and record problems, faults or malfunctions on DA form 2404.

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

CAUTION

If the Circuit Breaker switch does not stay in the [**ON**] position when closed, do not attempt to close it repeatedly. Closing the Circuit Breaker Switch repeatedly can create an overload situation causing equipment damage. Notify Unit Maintenance if the Circuit Breaker Switch will not stay in the [**ON**] position. Failure to comply with caution could result in equipment damage.

CAUTION

Do not slave (jump start) a vehicle without first powering down the AN/UYK-128(V) Computer systems in both vehicles (where applicable). Failure to comply may result in equipment damage.

TROUBLESHOOTING PROCEDURE

PROCESSOR UNIT TEMPERATURE TROUBLESHOOTING

SYMPTOM

The CPU amber LED on the DU is illuminated.

MALFUNCTION

Degraded PU speed due to elevated temperature, but the PU is operating.

CORRECTIVE ACTION

NOTE

The green CPU Light Emitting Diode (LED) will normally be illuminated. If the amber CPU LED illuminates, this indicates the PU ambient internal temperature is increasing. Processing speed of PU will automatically slow down to reduce heat. This causes the PU to respond slower. This condition is normal. If the red CPU LED illuminates, the AN/UYK-128(V) Computer will shut down and you will not be able to perform an AN/UYK-128(V) Computer startup until it sufficiently cools.

NOTE

PU NSN 7021-01-475-0217/NSN 7021-01-487-0579/NSN 7021-01-496-2126 does not have cooling fins, but surfaces must remain clear to radiate heat.

1. Verify that PU cooling fins are clean, not blocked and PU surfaces are not obstructed in any way.
2. If the amber CPU LED is continuously lit and you suspect a temperature problem, perform the following:
   a. Perform software shut down, then press the DU **PWR** button until green **PWR** LED goes dark.
   b. Allow sufficient time for PU cooling. Clear cooling fins (all sides and top).
   c. Press DU **PWR** button for up to 4 seconds and release when **PWR** green LED is illuminated.
   d. **CPU** LED illuminates green; problem solved.
   e. If the amber light remains continuously illuminated. - Call Unit Maintenance.

SYMPTOM

The **CPU** red LED on DU is illuminated.

MALFUNCTION

Shut down or failure of the PU due to elevated temperature.

CORRECTIVE ACTION

NOTE

If the red CPU LED turns on, the AN/UYK-128(V) Computer will automatically shut down.

1. Verify that PU cooling fins are clean, not blocked and PU surfaces are not obstructed in any way.
   a. Allow a minimum of 20 minutes for proper cooling. Clear cooling fins (all sides and top).
   b. Press DU **PWR** button for up to 4 seconds and release when **PWR** green LED is illuminated.
   c. After 5 minutes, the **CPU** LED light illuminates amber or green; problem solved.

CORRECTIVE ACTION–Continued

d. The **CPU** LED red light is again illuminated and the AN/UYK-128(V) Computer shuts down. Call Unit Maintenance.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

DISPLAY UNIT TEMPERATURE TROUBLESHOOTING PROCEDURE

INITIAL SETUP:

TROUBLESHOOTING PROCEDURES INTRODUCTION

The purpose of troubleshooting is to isolate faults and perform steps to correct the problem. Isolating a problem to hardware or software will help to expedite repairs and reduce the time the AN/UYK-128(V) Computer is non-operational.

The following troubleshooting procedure list common symptoms and malfunctions that may be encountered while operating or servicing the AN/UYK-128(V) Computer.

Locate the particular symptom encountered and complete the corrective action steps in order. Following the corrective action steps will enable the equipment operator to solve common problems and malfunctions.

If a malfunction is not identified or cannot be solved by the troubleshooting procedure, call Unit Maintenance and record problems, faults or malfunctions on DA form 2404.

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

CAUTION

If the Circuit Breaker switch does not stay in the [**ON**] position when closed, do not attempt to close it repeatedly. Closing the Circuit Breaker Switch repeatedly can create an overload situation causing equipment damage. Notify Unit Maintenance if the Circuit Breaker Switch will not stay in the [**ON**] position. Failure to comply with caution could result in equipment damage.

CAUTION

Do not slave (jump start) a vehicle without first powering down the AN/UYK-128(V) Computer systems in both vehicles (where applicable). Failure to comply may result in equipment damage.

TROUBLESHOOTING PROCEDURE

DISPLAY UNIT TEMPERATURE TROUBLESHOOTING

SYMPTOM

The **DISP** amber LED on the DU is illuminated.

MALFUNCTION

Decreased brightness because of elevated temperature.

CORRECTIVE ACTION

NOTE

The green DISP Light Emitting Diode (LED) will normally be illuminated. If the amber DISP LED illuminates, this indicates the DU ambient internal temperature is increasing. Screen brightness will automatically decrease to reduce heat. If the red DISP LED illuminates, shut down the AN/UYK-128(V) Computer immediately. Monitor LED indicators regularly.

NOTE

DU NSN 7021-01-475-0229/NSN 7025-01-475-0282 does not have cooling fins, but surfaces must remain clear to radiate heat.

1. Verify that DU cooling fins are clean, not blocked and DU surfaces are not obstructed in any way.
2. If the amber DISP LED is continuously lit and you suspect a temperature problem, perform the following:
   a. Perform software shut down, then press DU **PWR** button until green **PWR** LED goes dark.
   b. Allow sufficient time for DU cooling (out of direct sunlight). Clear cooling fins (all sides and top).
   c. Press DU **PWR** button for up to 4 seconds and release when **PWR** green LED is illuminated.
   d. **DISP** LED illuminates green; problem solved.
   e. If the amber light remains continuously illuminated. - call Unit Maintenance.

SYMPTOM

The **DISP** red LED on DU is illuminated.

MALFUNCTION

DU shut down or failure.

CORRECTIVE ACTION

NOTE

DU NSN 7021-01-475-0229/NSN 7021-01-475-0282 does not have cooling fins, but surfaces must remain clear to radiate heat.

1. Verify that DU cooling fins are clean, not blocked and DU surfaces are not obstructed in any way.
   a. Perform software shut down, then press DU **PWR** button until green **PWR** LED goes dark.
   b. Allow 20 minutes for proper cooling (out of direct sunlight). Clear cooling fins (sides, top, and rear).
   c. Press DU **PWR** button for up to 4 seconds and release when **PWR** green LED is illuminated.

CORRECTIVE ACTION–Continued

d. After 5 minutes of operation, **DISP** LED light illuminates amber or green; problem solved.

e. Red **DISP** LED is again illuminated. - Shut down the AN/UYK-128(V) Computer. Call Unit Maintenance.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

DISPLAY UNIT TROUBLESHOOTING PROCEDURE

INITIAL SETUP:

TROUBLESHOOTING PROCEDURES INTRODUCTION

The purpose of troubleshooting is to isolate faults and perform steps to correct the problem. Isolating a problem to hardware or software will help to expedite repairs and reduce the time the AN/UYK-128(V) Computer is non-operational.

The following troubleshooting procedure list common symptoms and malfunctions that may be encountered while operating or servicing the AN/UYK-128(V) Computer.

Locate the particular symptom encountered and complete the corrective action steps in order. Following the corrective action steps will enable the equipment operator to solve common problems and malfunctions.

If a malfunction is not identified or cannot be solved by the troubleshooting procedure, call Unit Maintenance and record problems, faults or malfunctions on DA form 2404.

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

CAUTION

If the Circuit Breaker switch does not stay in the [**ON**] position when closed, do not attempt to close it repeatedly. Closing the Circuit Breaker Switch repeatedly can create an overload situation causing equipment damage. Notify Unit Maintenance if the Circuit Breaker Switch will not stay in the [**ON**] position. Failure to comply with caution could result in equipment damage.

CAUTION

Do not slave (jump start) a vehicle without first powering down the AN/UYK-128(V) Computer systems in both vehicles (where applicable). Failure to comply may result in equipment damage.

TROUBLESHOOTING PROCEDURE

DISPLAY UNIT TROUBLESHOOTING

SYMPTOM

LEDs dark and/or screen is black.

MALFUNCTION

Display Unit LEDs and/or screen not illuminated

CORRECTIVE ACTION

1. Press **BLK OUT LAMP** button to verify that the screen is not in blackout mode.
   a. Display Unit LEDs and screen illuminate - problem solved. If not, continue.
   b. Press Display Unit **BRT +** button and **FCN** plus **LED +** button(s) (4 times) each to make sure brightness is not turned down - problem solved. If not, continue.
   c. Press Display Unit PWR button for up to 4 seconds (ensure circuit breaker/switch is set to ON). LEDs and screen light up - problem solved. If not, call Unit Maintenance.

SYMPTOM

Display Unit screen is dark (but LEDs are illuminated)

MALFUNCTION

Display screen not illuminated.

CORRECTIVE ACTION

1. Touch the DU screen to verify that it is not in screen saver mode. Screen illuminates - problem solved. If not, call Unit Maintenance.

SYMPTOM

Display Unit touchscreen not functioning.

MALFUNCTION

Touchscreen not functioning.

CORRECTIVE ACTION

1. Perform touchscreen calibration. Touchscreen functions properly - problem solved. If not, call Unit Maintenance.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

KEYBOARD UNIT TROUBLESHOOTING PROCEDURE

INITIAL SETUP:

TROUBLESHOOTING PROCEDURES INTRODUCTION

The purpose of troubleshooting is to isolate faults and perform steps to correct the problem. Isolating a problem to hardware or software will help to expedite repairs and reduce the time the AN/UYK-128(V) Computer is non-operational.

The following troubleshooting procedure list common symptoms and malfunctions that may be encountered while operating or servicing the AN/UYK-128(V) Computer.

Locate the particular symptom encountered and complete the corrective action steps in order. Following the corrective action steps will enable the equipment operator to solve common problems and malfunctions.

If a malfunction is not identified or cannot be solved by the troubleshooting procedure, call Unit Maintenance and record problems, faults or malfunctions on DA form 2404.

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

CAUTION

If the Circuit Breaker switch does not stay in the [**ON**] position when closed, do not attempt to close it repeatedly. Closing the Circuit Breaker Switch repeatedly can create an overload situation causing equipment damage. Notify Unit Maintenance if the Circuit Breaker Switch will not stay in the [**ON**] position. Failure to comply with caution could result in equipment damage.

CAUTION

Do not slave (jump start) a vehicle without first powering down the AN/UYK-128(V) Computer systems in both vehicles (where applicable). Failure to comply may result in equipment damage.

TROUBLESHOOTING PROCEDURE

KEYBOARD UNIT TROUBLESHOOTING

SYMPTOM

Single key(s) do not operate.

MALFUNCTION

Keyboard not functioning properly.

CORRECTIVE ACTION

1. Select any text screen and try several keys. Call Unit Maintenance and report which key(s) do not operate.

SYMPTOM

None of the KU keys, nor the mouse operate correctly.

MALFUNCTION

Keyboard Unit does not function properly.

CORRECTIVE ACTION

1. Check cable connection from KU to DU. If connection is loose, hand tighten and proceed to next step. If connection seems tight, proceed to next step.
2. Perform software shut down.
   a. Press DU **PWR** button for up to 4 seconds and release after the green PWR LED light goes dark.
   b. Wait 20 seconds.
   c. Press DU **PWR** button for up to 4 seconds (or until the green LED is illuminated) to startup AN/UYK-128(V) Computer.
3. KU keys and mouse now functions correctly - problem solved.
4. KU keys and mouse still do not function correctly - call Unit Maintenance.

SYMPTOM

KU has missing or damaged keys.

MALFUNCTION

Damaged keyboard.

CORRECTIVE ACTION

1. Call Unit Maintenance.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

PROCESSOR UNIT BOOTUP/SOFTWARE TROUBLESHOOTING PROCEDURE

INITIAL SETUP:

TROUBLESHOOTING PROCEDURES INTRODUCTION

The purpose of troubleshooting is to isolate faults and perform steps to correct the problem. Isolating a problem to hardware or software will help to expedite repairs and reduce the time the AN/UYK-128(V) Computer is non-operational.

The following troubleshooting procedure list common symptoms and malfunctions that may be encountered while operating or servicing the AN/UYK-128(V) Computer.

Locate the particular symptom encountered and complete the corrective action steps in order. Following the corrective action steps will enable the equipment operator to solve common problems and malfunctions.

If a malfunction is not identified or cannot be solved by the troubleshooting procedure, call Unit Maintenance and record problems, faults or malfunctions on DA form 2404.

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

CAUTION

If the Circuit Breaker switch does not stay in the [**ON**] position when closed, do not attempt to close it repeatedly. Closing the Circuit Breaker Switch repeatedly can create an overload situation causing equipment damage. Notify Unit Maintenance if the Circuit Breaker Switch will not stay in the [**ON**] position. Failure to comply with caution could result in equipment damage.

CAUTION

Do not slave (jump start) a vehicle without first powering down the AN/UYK-128(V) Computer systems in both vehicles (where applicable). Failure to comply may result in equipment damage.

NOTE

A highlighted exclamation point (!) displayed on the F5 Status... button indicates the disk drive is at or near capacity. This could cause the system to respond slowly. Also, if the system does not appear to be responding, it might be processing data.

TROUBLESHOOTING PROCEDURE

PROCESSOR UNIT BOOTUP/SOFTWARE TROUBLESHOOTING

SYMPTOM

DU screen displays the following message: **INIT: Command is respawning too rapidly. Check for possible errors.**

MALFUNCTION

The AN/UYK-128(V) Computer fails to bootup.

CORRECTIVE ACTION

1. Press DU **PWR** button for up to 4 seconds until the green LED goes dark to shut down the AN/UYK-128(V) Computer.
2. Set PU circuit breaker/switch to OFF.
3. Verify the Keyboard cable is connected. If not connected, reconnect and continue. If connected, call Unit Maintenance.
4. Set PU circuit breaker/switch to ON. Press DU **PWR** button for up to 4 seconds (or until green LED is illuminated), then release to restart the AN/UYK-128(V) Computer.
5. The AN/UYK-128(V) Computer functions correctly - problem is resolved.
6. The AN/UYK-128(V) Computer still does not function properly - call Unit Maintenance.

SYMPTOM

The AN/UYK-128(V) Computer fails to bootup to Session Manager screen.

MALFUNCTION

System fails bootup.

CORRECTIVE ACTION

1. Verify that RHDDC is installed and properly seated.
2. Press DU **PWR** button for up to 4 seconds until the green LED goes dark to shut down the AN/UYK-128(V) Computer.
3. Wait 20 seconds. Press DU **PWR** button for up to 4 seconds (or until green LED is illuminated), then release to restart the AN/UYK-128(V) Computer. Computer functions properly - problem solved. If not, call Unit Maintenance.

SYMPTOM

The AN/UYK-128(V) Computer continuously reboots/locks up or displays an exclamation point (!) on the F5 Status... button, indicating a possible PU fault.

MALFUNCTION

Operator followed established orderly procedures for startup/shut down. The system still fails to function properly.

CORRECTIVE ACTION

1. Press DU **PWR** button for up to 4 seconds until the green LED goes dark to shut down the AN/UYK-128(V) Computer.
2. Wait 20 seconds. Press DU **PWR** button for up to 4 seconds (or until green LED is illuminated), then release to restart the AN/UYK-128(V) Computer.
3. At the Session Manager screen, "Clear Logs and Queues" per the procedures listed in WP 0005 00, Table 25.
4. The AN/UYK-128(V) Computer functions correctly - problem is resolved.

CORRECTIVE ACTION–Continued

5. The AN/UYK-128(V) Computer still does not function properly - call Unit Maintenance.

SYMPTOM

FBCB2 software is not responding.

MALFUNCTION

Computer locks up, indicating a possible PU fault.

CORRECTIVE ACTION

NOTE

System may not be responding if it is processing data.

1. Press the **Start** button on the task bar.
2. Select the **FBCB2** menu option.
3. Select the **Exit BCOPS** option.
4. Select the **Yes** button.
5. The AN/UYK-128(V) Computer functions correctly - problem is resolved.
6. The AN/UYK-128(V) Computer still does not function properly - call Unit Maintenance.

SYMPTOM

Software not properly functioning after Unit/Role change.

MALFUNCTION

FBCB2 appears corrupted (i.e., not recognizing new role functionality).

CORRECTIVE ACTION

1. Restore database to previous Unit/Role IAW WP 0005 00, Table 24
2. The AN/UYK-128(V) Computer functions correctly - problem is resolved.
3. The AN/UYK-128(V) Computer still does not function properly - call Unit Maintenance.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

INC TROUBLESHOOTING PROCEDURE

INITIAL SETUP:

TROUBLESHOOTING PROCEDURES INTRODUCTION

The purpose of troubleshooting is to isolate faults and perform steps to correct the problem. Isolating a problem to hardware or software will help to expedite repairs and reduce the time the AN/UYK-128(V) Computer is non-operational.

The following troubleshooting procedure list common symptoms and malfunctions that may be encountered while operating or servicing the AN/UYK-128(V) Computer.

Locate the particular symptom encountered and complete the corrective action steps in order. Following the corrective action steps will enable the equipment operator to solve common problems and malfunctions.

If a malfunction is not identified or cannot be solved by the troubleshooting procedure, call Unit Maintenance and record problems, faults or malfunctions on DA form 2404.

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

CAUTION

If the Circuit Breaker switch does not stay in the [**ON**] position when closed, do not attempt to close it repeatedly. Closing the Circuit Breaker Switch repeatedly can create an overload situation causing equipment damage. Notify Unit Maintenance if the Circuit Breaker Switch will not stay in the [**ON**] position. Failure to comply with caution could result in equipment damage.

CAUTION

Do not slave (jump start) a vehicle without first powering down the AN/UYK-128(V) Computer systems in both vehicles (where applicable). Failure to comply may result in equipment damage.

TROUBLESHOOTING PROCEDURE

INC TROUBLESHOOTING

SYMPTOM

Comm Status gumball is A (i.e., Amber) or R (i.e., Red) and/or Icons are stale. PPP status is No Go.

MALFUNCTION

Message data not transmitted or received.

CORRECTIVE ACTION

1. Rotate SINCGARS ASIP R/T radio function (**FCTN**) switch to **LD** position.
2. Press the **2** button. Radio displays: **RT**.
3. Press the **7** button until radio displays **LDE**. Then after 1-2 seconds, radio displays: **LDE-N**. If the Receiver/Transmitter (R/T) displays **NEWIP** after **LDE-N**, press **STO** button.
4. Press the **1** button.
5. Press the **STO** button. Radio displays: **DEFLT**. Then after 1-2 seconds **RT**.
6. Rotate radio function switch to ON position.
7. Reboot the AN/UYK-128(V) Computer IAW WP 0005 00, Table 22. Communication status gumball is G (i.e., green), problem solved. If Communication status gumball is R (i.e., red) or A (i.e., amber), call Unit Maintenance
8. It may be necessary to repeat the procedures above three or four times to clear the Internet Controller (INC).

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

MILSATCOM TROUBLESHOOTING PROCEDURE

INITIAL SETUP:

TROUBLESHOOTING PROCEDURES INTRODUCTION

The purpose of troubleshooting is to isolate faults and perform steps to correct the problem. Isolating a problem to hardware or software will help to expedite repairs and reduce the time the AN/UYK-128(V) Computer is non-operational.

The following troubleshooting procedure list common symptoms and malfunctions that may be encountered while operating or servicing the AN/UYK-128(V) Computer.

Locate the particular symptom encountered and complete the corrective action steps in order. Following the corrective action steps will enable the equipment operator to solve common problems and malfunctions.

If a malfunction is not identified or cannot be solved by the troubleshooting procedure, call Unit Maintenance and record problems, faults or malfunctions on DA form 2404.

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

TROUBLESHOOTING PROCEDURE

MILSATCOM TROUBLESHOOTING

SYMPTOM

Message data not transmitted or received (Comm status is R (red)).

MALFUNCTION

FBCB2 MILSATCOM interface problem.

CORRECTIVE ACTION

1. Send a free text message.
2. Check status of equipment indicators as outlined in Table 1.

NOTE

On the ADC/IP front panel, good transmit (TX) is indicated by both the yellow BUSY and red TX LEDs turning on and then turning off at approximately the same time. Good receive (RX) is indicated by both the yellow BUSY and green RX LEDs turning on and then turning off at approximately the same time.

CORRECTIVE ACTION–Continued

Table 1. MILSATCOM Equipment Fault Matrix

FBCB2	INC	ADC/IP	AN/PSC-5	CLSM	Corrective Action
Message sent	**PWR** LED ON	No **BUSY** LED			a. Check W1 and W2 (ADC/IP) cable connections. b. Check power to INC. c. Recycle power on ADC/IP.
Message sent	**PWR** LED ON	No **BUSY**, **TX** or **RX** LEDs			a. Recycle power on ADC/IP. b. Perform ADC/IP BIT Test.
Message sent	**PWR** LED ON	OK **BUSY** LED, NO **TX** LED			a. Check W1 and W2 (ADC/IP) cable connections. b. Check power to INC. c. Recycle power on ADC/IP.
Message sent	**PWR** LED ON	Stuck **TX**, **RX** or **BUSY** LED			a. Recycle power on ADC/IP. b. Check W3 (ADC/IP) cable connection. c. Recycle power on AN/PSC-5 radio
Message sent	**PWR** LED ON	OK **BUSY** LED and OK **TX** LED.	NO **TX** indication.		a. If RX LED is ON, wait b. Ensure power applied to the Bias Tee. c. Check W3 (ADC/IP) cable connection. d. Recycle power on AN/PSC-5 radio. e. Perform MILSATCOM Loopback Test.
Message sent	**PWR** LED ON	OK **BUSY** LED and OK **TX** LED	Stuck **TX** indication.		a. Recycle power on AN/PSC-5 radio. b. Check W3 (ADC/IP) cable connection
Message sent	**PWR** LED ON	OK **BUSY** LED, OK **TX** LED and NO **RX** LED.	Stuck **TX** indication.		a. Recycle power on AN/PSC-5 radio. b. Condition is likely prompted from other network users.
Message sent	**PWR** LED ON	OK **BUSY** LED, OK **TX** LED and NO **RX** LED.	**TX** and **RX** indication.	No indication.	a. Reload crypto keys. b. Recycle power on AN/PSC-5 radio. c. Check power to Bias Tee. d. Check W3 (ADC/IP) cable connection. e. Perform MILSATCOM Loopback Test. f. Refer to applicable antenna manual.

TROUBLESHOOTING PROCEDURE

SATCOM LOOPBACK TROUBLESHOOTING

SYMPTOM

Message data not transmitted or received (Comm status is G (green)).

MALFUNCTION

SATCOM data not transmitted or received.

CORRECTIVE ACTION

1. Perform SATCOM Loopback Test:
2. At BIT OPTION menu of the AN/PSC-5 front panel, press “2” key. SATCOM LOOPBACK and Channel Number used are shown.
3. With cursor resting on {SEND}, press ENT key. The display will show the message “Executing Test”.
4. If the test passes, the display will show the message “Test Successful” and the Relative Signal Strength (RSS) of at least 100.
5. If the test fails, the message “Test Failed” is displayed. If the test failed or if the RSS is less than 100, check obstructions to the SOTM antenna reception; relocate and repeat the test. If problem persists, contact Unit Maintenance.
6. Press ESC once to return to BIT OPTION or twice to Main menu.

END OF WORK PACKAGE

CHAPTER 4

OPERATOR MAINTENANCE

MAINTENANCE INSTRUCTIONS

FOR

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2)

CHAPTER 4

OPERATOR MAINTENANCE
MAINTENANCE INSTRUCTIONS

WORK PACKAGE INDEX

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

PMCS PROCEDURES INTRODUCTION

Introduction To PMCS

This work package lists the Preventive Maintenance Checks and Services (PMCS) for the AN/UYK-128(V) Computer.

The purpose of PMCS is to discover and correct deficiencies, faults or defects before serious equipment damage or equipment failure occurs. Performing PMCS before powering up the AN/UYK-128(V) Computer will help to ensure that the equipment is functioning properly. Always perform PMCS in the same sequence; by doing so, it will help to spot potential problems quickly. Technical Manuals for the PLGR, SINCGARS ASIP (if installed), and EPLRS (if installed) contain specific PMCS procedures for the referenced equipment. PLGR, SINCGARS ASIP (if installed), and EPLRS (if installed) PMCS procedures need to be performed prior to performing AN/UYK-128(V) Computer PMCS procedures.

Operator Checks. The AN/UYK-128(V) Computer requires that periodic PMCS be performed on a regular basis. Operator checks and services are to be performed before the mission, during the mission, and after the mission.

Responsibilities. The user is responsible for checking each item listed in the "PMCS Procedure" work package and for performing all Operator PMCS tasks. Certain conditions may degrade the operation of the system, however the condition does not prevent the system from being mission capable. Report the system as "Not Ready" if a status described in the "Equipment Status" column exists. Operators must not put a "Not Ready" system into operation. Corrective maintenance must first rectify the problem.

Safety. Always follow all safety procedures and practices. **THINK SAFETY**! Keep the **WARNINGS** and **CAUTIONS** in mind as you perform the PMCS. A **WARNING** alerts you to danger. It means that you or a crew member can be injured if the **WARNING** is not followed. A **CAUTION** means that your equipment can become damaged if the **CAUTION** is not followed.

Conditions To Avoid

To maximize the effectiveness of the PMCS, ensure that the following conditions are immediately corrected. Always watch out for the following:

GREASE AND DIRT. Keep the area around your AN/UYK-128(V) Computer clean. Dirt, grease, oil and other debris may cause serious problems that can shorten the life of your equipment. Clean as you go.

LOOSE, DAMAGED, OR MISSING BOLTS, NUTS AND SCREWS. Check for obvious looseness, damaged, or missing bolts, nuts and screws. You can often identify loose bolts by chipped or missing paint around the bolt head and bare metal at the base of the bolt head. Verify that all bolts are tight. If a bolt, nut or screw is missing, or damaged, report it to Unit Maintenance.

FRAYED, DAMAGED CABLES OR LOOSE, DAMAGED CONNECTORS. Check cables for cracks or other damage. If you find exposed wiring or damaged or loose clamps or connectors, notify Unit Maintenance immediately.

MOUNTED COMPONENTS. Always inspect to ensure that the AN/UYK-128(V) Computer and the components are securely mounted before you operate the AN/UYK-128(V) Computer and the platform. The Display Unit (DU) must be correctly installed in wheeled platforms to maximize the driver's visibility through the front windshield and side door windows, so as to ensure that the DU does not hamper the driver's ability to safely operate the platform. The correct mounting location for the DU is a prime **SAFETY** concern. See Driver's Field of View section before operating the AN/UYK-128(V) Computer in your platform.

Reminder. It is important that the equipment operator has the needed publications, a soft lint-free cloth, and assistance as required when conducting PMCS on the AN/UYK-128(V) Computer. The assistance that should be furnished to the operator comes from Unit Maintenance in accordance with Army Maintenance doctrine. Each Unit Maintenance section should have a trained Unit Level Maintainer available to assist operators to resolve equipment problems.

Problems. If a problem with the AN/UYK-128(V) Computer is found while performing the PMCS, use the Troubleshooting Procedures outlined in the troubleshooting work packages. If the problem or malfunction cannot be corrected, record the

deficiency or fault on the DA Form 2404. Remember only record non-correctable deficiencies or faults on the DA Form 2404; **DO NOT** record corrected equipment faults. After completing the PMCS, present the DA Form 2404 to Unit Maintenance according to established Unit Maintenance procedures. For more information on how to use DA Form 2404, refer to DA PAM 738-750. Report "Equipment Is Not Ready" immediately to Unit Maintenance using Unit SOP to request assistance.

WARNING

Do not disconnect or connect cables without first powering down the system and turning off all power. Always disconnect ground cable last when disassembling, and always connect ground cable first when assembling. Failure to comply may cause injury to personnel or equipment damage.

WARNING

Inspect cables to ensure that they are properly dressed and stowed to prevent trip and snag hazards or damage to the equipment. Failure to comply may cause injury to personnel or equipment damage.

CAUTION

Inspect all hardware for cracks, deformation or loose attachment hardware. Ensure that removable components are securely stowed. Report damaged equipment to authorized maintenance personnel. Failure to comply may cause equipment damage.

CAUTION

Inspect cables and connectors to ensure that there is no damage to the equipment. Inspect all connections (including ground) to ensure that connectors are properly mated and secure. Failure to comply may cause equipment damage.

CAUTION

Operators should not perform unauthorized modifications or maintenance to the equipment. Maintenance is to be conducted by authorized personnel only. Failure to comply may cause equipment damage.

CAUTION

Ensure access door is free of obstructions and door screws are properly tightened. Failure to comply can cause equipment damage.

NOTE

Perform all other equipment PMCS procedures prior to performing AN/UYK-128(V) Computer PMCS.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

PREVENTIVE MAINTENANCE CHECKS AND SERVICES

INITIAL SETUP:

Table 1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY AVAILABLE IF:
1	Weekly/ Before Mission		Display Unit (DU)	Inspect for cracks, or other severe damage to the touchscreen. **Degraded if:** Touchscreen is cracked or has severe scratches that would prevent touchscreen operation.	
				Clean touchscreen.	
				Hand tighten grounding strap thumb screw.	
2	Weekly/ Before Mission		Processor Unit (PU)	Hand tighten grounding strap thumb screw.	
3	Weekly/ Before Mission		Removable Hard Disk Drive Cartridge (RHDDC)	Ensure RHDDC is present, properly seated.	
				Secure RHDDC access door.	
4	Weekly/ Before Mission		Keyboard Unit (KU)	Inspect for inoperable, missing/sticking keys. **Degraded if:** KU alpha, numeric, or Enter keys do not function.	
				Inspect keyboard membrane seal (broken or torn membrane could allow moisture to enter and damage KU).	
5	Weekly/ Before Mission		Cables/ Mounting Hardware	Tighten RAM-Ball Mount assembly, if equipped.	RAM-Ball cannot be tightened to prevent DU movement.
				Inspect cables for evidence of damage (i.e., frayed, broken or bare wires)	Cables are missing/damaged.
				Inspect all cable connectors. (properly mated, only the blue band is showing)	
				Inspect mounting bolts/hardware. (tighten and secure)	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY AVAILABLE IF:
6	Weekly/ Before Mission		Peripheral equipment (i.e., PLGR, SINCGARS, EPLRS, MILSATCOM, etc.)	Ensure appropriate role specific peripheral equipment is present and operational.	PLGR, SINCGARS, EPLRS or MILSATCOM (if required per role) are missing or not functioning.
7	Weekly/ Before Mission		FBCB2 System	Initialize system and verify the operational status of the FBCB2 System as follows:	Damage prevents operator from logging in or AN/UYK-128(V) Computer from startup.
				Verify correct Unit/Role.	
				Verify green LEDs are illuminated for PWR (Power), DISP (Display), and CPU (Processor Unit) on the DU Controls and Indicators Panel.	
				Verify Local Comm status is "G" (green). **Degraded if:** Local Comm status gumball is "A" (amber). Status is Unknown if gumball is "W" (white).	Local Communication status shows an "R" (red) gumball.
				Verify Global Positioning System (GPS) status is "G" (green) and platform icon is displayed on SA.	Your Icon is not present on SA or GPS status shows an “R” (red) gumball.
				Enter net and verify all is working. **NOTE:** For SINCGARS equipped platforms, check to ensure you can see icons of platforms within your platoon. For EPLRS equipped platforms, ensure that you can see platform icons outside you local net (i.e., platoon 1 to platoon 2)	Unable to see another platforms icon and unable to send/receive messages.
8	Weekly/ Before Mission		PU batteries	Check the battery tray/battery box inside the PU for charge. For PU shown in WP 0002 00, Figure 1 , check front of battery tray to ensure that the charge indicator displays at least three (3) LCD bars. For PU shown in WP 0002 00, Figure 2 , press button twice on front of battery box to display diagnostic codes. Code "05" indicates battery is low. **Degraded if:** Battery charge indicators show that battery(s) have low charge/no charge.	
				With platform powered up, turn Circuit Breaker (CB) toggle switch to "ON" position for 2 hours to recharge backup batteries. **Degraded if:** Backup battery(s) fail to charge.	
				Secure PU access door.	
9	After Mission		FBCB2 System	Verify AN/UYK-128(V) Computer and peripheral equipment are present, secured and properly stowed to avoid damage.	DU, PU, KU and/or peripheral equipment are missing/damaged, and thereby prevent proper system operation.
10	After Mission		AN/UYK-128(V) Computer	Tighten RAM-Ball Mount assembly, if equipped.	RAM-Ball cannot be tightened to prevent DU movement.
				Inspect cables for evidence of frayed, broken or bare wires.	Cables are missing/damaged.
				Inspect all cable connectors (properly mated, only the blue band is showing).	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY AVAILABLE IF:
				Inspect mounting bolts for tightness and verify mounting hardware is secure.	
				Inspect keyboard for torn or broken membrane.	Membrane is torn or broken.
11	After Mission		Processor Unit (PU)	Securely fasten the Removable Hard Disk Drive Cartridge (RHDDC) access door. All 4 (or all 6) captive fasteners must be evenly and securely tightened.	RHDDC access door is not properly closed due to obstructions, bad seal, broken/missing/loose captive fastener(s).
				Verify CB toggle switch is set to “OFF” position.	CB toggle switch is broken/damaged.
12	After Mission		Processor Unit (PU), Display Unit (DU), and Keyboard Unit (KU)	Safeguard with 5200 series lock(s)/cables to secure PU, DU, and KU as applicable to your platform.	

MANDATORY REPLACEMENT PARTS

There are no mandatory replacement parts for the AN/UYK-128(V) Computer.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

MAINTENANCE PROCEDURES GENERAL INFORMATION

INITIAL SETUP:

MAINTENANCE PROCEDURES GENERAL INFORMATION

This work package discusses the maintenance procedures applicable to the AN/UYK-128(V) Computer.

CLEANING

CAUTION

Water may enter the Processor Unit (PU). Before wash-down, ensure that the Removable Hard Disk Drive Cartridge (RHDDC) access door is closed and that all connectors are properly covered with cable connectors or caps. Failure to comply may result in equipment damage.

Cleaning Precautions. The AN/UYK-128(V) Computer with the interface cables and connector covers attached is protected against water penetration. The equipment is watertight ONLY IF the RHDDC access panel and the connector covers are attached. The operator should AVOID exposing the AN/UYK-128(V) Computer to a high-pressure water source or using a high-pressure water source for cleaning.

Cleaning Procedures. The recommended cleaning procedures are as follows:

1. Ensure that the AN/UYK-128(V) Computer is powered down and turned off.
2. Ensure that the RHDDC access panel is closed and the knurled knobs are tight and all connector covers are attached.
3. Clean metal surfaces using a mild detergent with a damp sponge or lint-free cloth. After gently washing surfaces, wipe with a dry lint-free cloth.
4. Clean the Display Unit (DU) screen using a mild detergent with a soft moist lint-free cloth. After gently washing, wipe surface dry with a clean soft lint-free cloth.
5. Clean cables by wiping down with damp sponge or moist cloth; wipe dry with clean cloth. **NEVER** submerge loose or disconnected cables in water.
6. Gently clean the molded keypad membrane on the Keyboard Unit (KU) using a soft lint-free moist cloth. Wipe dry with a clean lint-free cloth.

INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

External Visual Inspection. Visually check the major components for physical damage. Inspect the Processor Unit (PU), Keyboard Unit (KU), Display Unit (DU) and cables for wear and physical damage. For a detailed check of the AN/UYK-128(V) Computer, follow the procedural steps listed in Preventative Maintenance Checks and Services (PMCS) for the operator. (If the inspection discovers any unusual or excessive wear or physical damage report it immediately to Unit Maintenance.

LUBRICATION

1. There are no lubrication requirements for the AN/UYK-128(V) Computer.

REMOVAL

REMOVE THE REMOVABLE HARD DISK DRIVE CARTRIDGE (RHDDC) (NSN 7025-01-474-5753)

WARNING

When handling the Removable Hard Disk Drive Cartridge (RHDDC), wait at least 10 seconds after the Processor Unit (PU) is powered down to allow the disk to stop spinning, before removing the RHDDC. The RHDDC can be hot. Burns may result. Allow the RHDDC to adequately cool or use gloves prior to removing it from the PU. Failure to comply could result in injury to personnel.

CAUTION

Not all Removable Hard Disk Drive Cartridge (RHDDC) models are interchangeable. Refer to National Stock Numbers (NSNs) and relevant Technical Manuals (TMs) to determine compatibility with the Processor Unit (PU). Failure to comply could result in equipment damage.

CAUTION

Wait at least 10 seconds after Processor Unit (PU) is powered down, to allow the disks to stop spinning, before removing the Removable Hard Disk Drive Cartridge (RHDDC). Failure to comply could result in equipment damage.

CAUTION

Keep the Removal Hard Disk Drive Cartridge (RHDDC) away from strong magnetic fields and never bang or drop a RHDDC on any surface. Failure to comply could result in damage to stored data or equipment damage.

CAUTION

Never insert or remove the Removable Hard Disk Drive Cartridge (RHDDC) while the Processor Unit (PU) is powered up. Failure to comply could result in equipment damage.

CAUTION

Ensure that the Removable Hard Disk Drive Cartridge (RHDDC) access door is properly closed. The RHDDC access door must be free of obstructions, correctly sealed, and have all captive fasteners securely tightened. Failure to comply may result in equipment damage.

This section details the steps necessary to remove the Removable Hard Disk Drive Cartridge (RHDDC) NSN 7025-01-474-5753 that is a Line Replaceable Unit (LRU) within the Processor Unit (PU) NSN 7021-01-475-0217/NSN 7021-01-487-0579/NSN 7021-01-496-2126. The two different RHDDC configurations described in this manual are not interchangeable.

With this configuration, the RHDDC is located on the interior left side of the PU.

REMOVAL–Continued

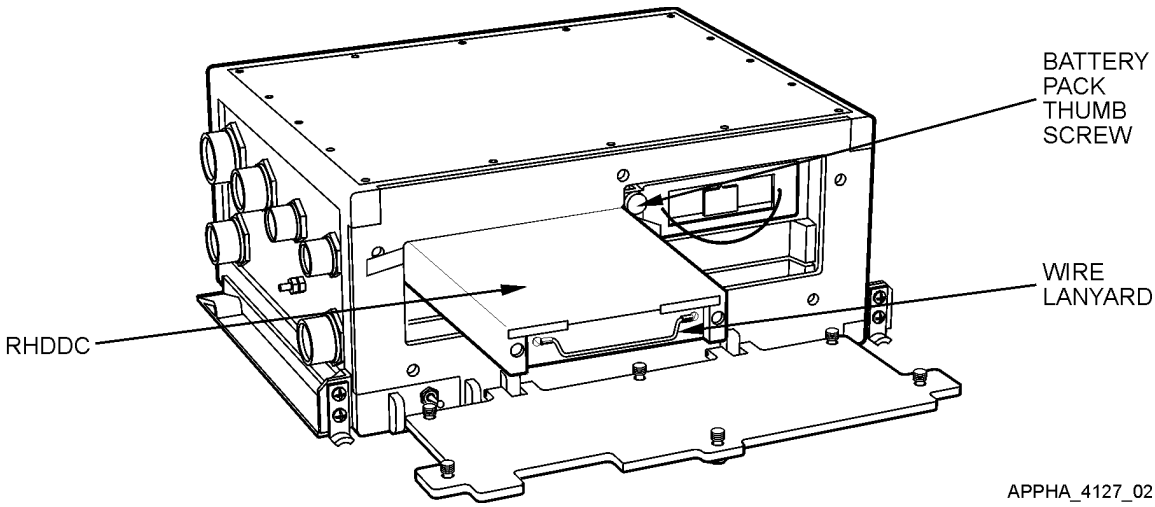


Figure 1 **Removable Hard Disk Drive Cartridge (NSN 7025-01-474-5753)**

1. Shut down the AN/UYK-128(V) Computer.
2. Open PU guard/kick plate (M548A3 VOLCANO only).
3. Remove chain from the guard (HMMWV only) if not already accomplished.
4. Remove lock from PU if not already accomplished.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) access door is sealed with a hollow D-strip gasket. Take care not to tear or damage this gasket when opening or closing the access door. Ensure that this gasket is properly aligned before closing door and securing fasteners.

5. Loosen completely all six (6) captive fasteners on the RHDDC access door.
6. Open the RHDDC access door completely.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) in Processor Unit (PU) NSN 7021-01-475-0217/NSN 7021-01-487-0579/NSN 7021-01-496-2126 is located on the interior left side. If the RHDDC is located on the right side of PU, refer to the proper removal procedure.

7. Pull the two (2) RHDDC retaining latches outward to release the cartridge.
8. Grasp the RHDDC wire handle with your fingers and pull straight outward with steady pressure until the cartridge unseats and clears access door. (If necessary, slightly rock cartridge back and forth to unseat it.)
9. Place the RHDDC in protective carrying case.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) may contain classified information. Follow applicable security operating procedure when securing and transporting any RHDDC.

REMOVAL–Continued

10. Secure the RHDDC for movement per Unit SOP.

NOTE

If replacing the Removable Hard Disk Drive Cartridge (RHDDC) immediately, skip remaining steps in this procedure and proceed to the installation procedures.

11. Push the two (2) RHDDC retaining latches back over the empty cartridge slot.
12. Ensure that the thumb screw holding the battery pack in place is securely tightened.
13. Ensure that no obstruction, such as a wire handle or a retaining latch, prevents proper seating of gasket or closure of access door.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) access door is sealed with a hollow D-strip gasket. Take care not to tear or damage this gasket when opening or closing the access door. Ensure that this gasket is properly aligned before closing door and securing fasteners.

14. Carefully align and close access door and hold it shut.

NOTE

Loosely thread all six (6) captive fasteners before any one fastener is completely tightened, or remaining fasteners may be difficult to thread.

15. Loosely thread all six (6) captive fasteners on access door.
16. Tighten all six (6) captive fasteners evenly and securely on the access door.
17. Install lock on PU if required.
18. Install chain on the guard (HMMWV only) if required.
19. Close the PU guard/kick plate (M548A3 VOLCANO only).

REMOVAL

REMOVE THE REMOVABLE HARD DISK DRIVE CARTRIDGE (RHDDC) (NSN 7025-01-474-3789/NSN 7025-01-487-0580)

This section details the steps necessary to remove the Removable Hard Disk Drive Cartridge (RHDDC) NSN 7025-01-474-3789/NSN 7025-01-487-0580 that is a Line Replaceable Unit (LRU) within the Processor Unit (PU) NSN 7021-01-474-3793/NSN 7021-01-487-0578/NSN 7021-01-496-4263. The two different RHDDC configurations described in this manual are not interchangeable.

With this configuration, the RHDDC is located on the interior right side of the PU.

REMOVAL–Continued

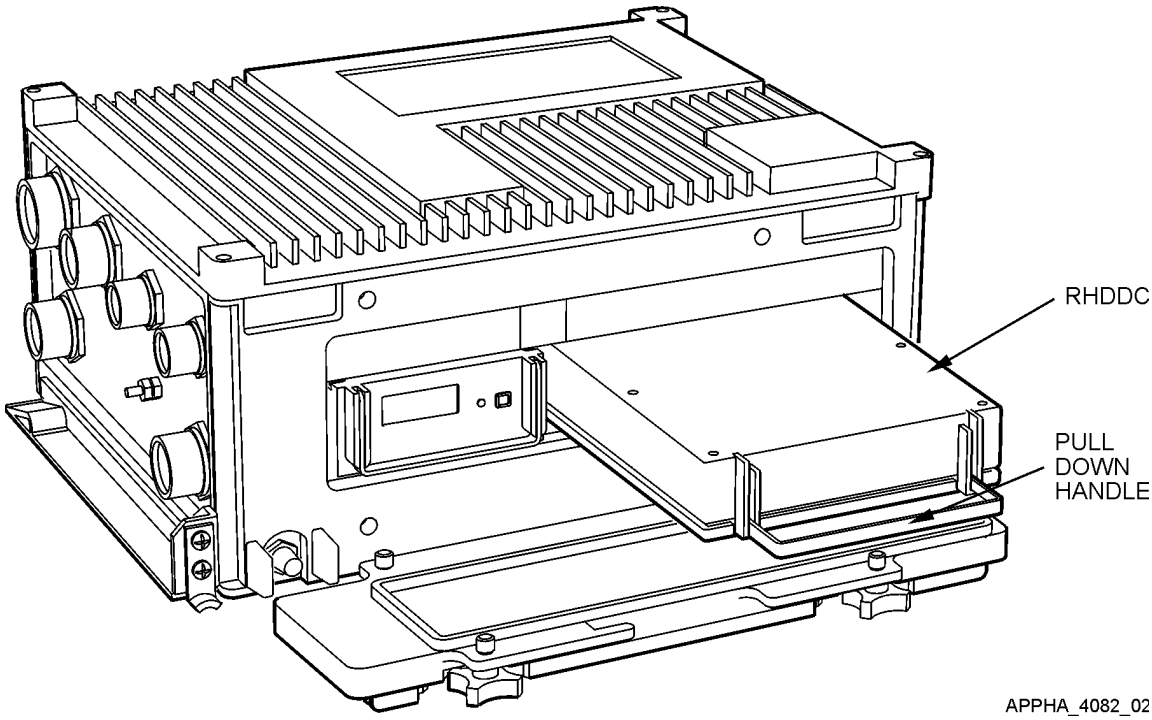


Figure 2 **Removable Hard Disk Drive Cartridge (NSN 7025-01-474-3789/NSN 7025-01-487-0580)**

1. Shut down the AN/UYK-128(V) Computer.
2. Open PU guard/kick plate (M548A3 VOLCANO only).
3. Remove chain from the guard (HMMWV only) if not already accomplished.
4. Remove lock from PU if not already accomplished.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) access door is sealed with an O-ring gasket. Take care not to tear or damage this gasket when opening or closing the access door. Ensure that this gasket is properly aligned before closing door and securing fasteners.

5. Loosen completely all four (4) captive fasteners on the RHDDC access door.
6. Open the RHDDC access door completely.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) in Processor Unit (PU) NSN 7021-01-474-3793/NSN 7021-01-487-0578/NSN 7021-01-496-4263 is located on the interior right side. If the RHDDC is located on the left side of PU, refer to the proper removal procedure.

7. Pull the RHDDC latching handle down to release cartridge.
8. Grasp the RHDDC latching handle with your fingers and pull straight outward with steady pressure until cartridge unseats and clears access door. (If necessary, slightly rock cartridge back and forth to unseat it.)

REMOVAL–Continued

9. Place the RHDDC in protective carrying case.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) may contain classified information. Follow applicable security operating procedure when securing and transporting any RHDDC.

10. Secure the RHDDC for movement per Unit SOP.

NOTE

If replacing the Removable Hard Disk Drive Cartridge (RHDDC) immediately, skip remaining steps in this procedure and proceed to the installation procedures.

11. Ensure that no obstruction, such as latching handle, prevents proper seating of gasket or closure of access door.
12. Carefully align and close access door and hold it shut.

NOTE

Loosely thread all four (4) captive fasteners before any one fastener is completely tightened, or remaining fasteners may be difficult to thread.

13. Loosely thread all four (4) captive fasteners on access door.
14. Tighten all four (4) captive fasteners evenly and securely on access door.
15. Install lock on PU if required.
16. Install chain on the guard (HMMWV only) if required.
17. Close PU guard/kick plate (M548A3 VOLCANO only).

INSTALLATION

INSTALL THE REMOVABLE HARD DISK DRIVE CARTRIDGE (RHDDC) (NSN 7025-01-474-5753)

WARNING

When handling the Removable Hard Disk Drive Cartridge (RHDDC), wait at least 10 seconds after the Processor Unit (PU) is powered down to allow the disk to stop spinning, before removing the RHDDC. The RHDDC can be hot. Burns may result. Allow the RHDDC to adequately cool or use gloves prior to removing it from the PU. Failure to comply could result in injury to personnel.

CAUTION

Not all Removable Hard Disk Drive Cartridge (RHDDC) models are interchangeable. Refer to National Stock Numbers (NSNs) and relevant Technical Manuals (TMs) to determine compatibility with the Processor Unit (PU). Failure to comply could result in equipment damage.

CAUTION

Wait at least 10 seconds after Processor Unit (PU) is powered down, to allow the disks to stop spinning, before removing the Removable Hard Disk Drive Cartridge (RHDDC). Failure to comply could result in equipment damage.

CAUTION

Ensure that the Removable Hard Disk Drive Cartridge (RHDDC) access door is properly closed. The RHDDC access door must be free of obstructions, correctly sealed, and have all captive fasteners securely tightened. Failure to comply may result in equipment damage.

CAUTION

Keep the Removal Hard Disk Drive Cartridge (RHDDC) away from strong magnetic fields and never bang or drop a RHDDC on any surface. Failure to comply could result in damage to stored data or equipment damage.

CAUTION

Never insert or remove the Removable Hard Disk Drive Cartridge (RHDDC) while the Processor Unit (PU) is powered up. Failure to comply could result in equipment damage.

The following are the procedures necessary to replace the RHDDC NSN 7025-01-474-5753 in PU NSN 7021-01-475-0217/NSN 7021-01-487-0579/NSN 7021-01-496-2126. This RHDDC is located on the interior left side of the PU.

1. Shut down the AN/UYK-128(V) Computer.
2. Open PU guard/kick plate (M548A3 VOLCANO only).
3. Remove chain from the guard (HMMWV only) if not already accomplished.

INSTALLATION–Continued

4. Remove lock from PU if not already accomplished.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) access door is sealed with a hollow D-strip gasket. Take care not to tear or damage this gasket when opening or closing the access door. Ensure that this gasket is properly aligned before closing door and securing fasteners.

5. Loosen completely all six (6) captive fasteners on the RHDDC access door.
6. Open the RHDDC access door completely.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) in Processor Unit (PU) NSN 7021-01-475-0217/NSN 7021-01-487-0579/NSN 7021-01-496-2126 is located on the interior left side. If the RHDDC is located on the right side of PU, refer to the proper installation procedure.

7. Pull the two (2) RHDDC retaining latches outward from empty cartridge slot.
8. Remove the RHDDC from protective carrying case.
9. Grasp the RHDDC wire handle so that the label on the RHDDC faces upward (i.e., toward top of PU).

NOTE

The Processor Unit is mounted up side down in the M985/978/1074/1075/1120 HEMTT/PLS/LHS. Make sure the RHDDC is in the same plane (up side down) during installation.

10. Insert RHDDC into the left slot and carefully slide into place while applying steady pressure until fully seated. (If necessary, slightly rock cartridge back and forth to seat it).
11. Push the two (2) retaining latches inward over the RHDDC to lock it into place.
12. Ensure that the thumb screw holding the battery pack in place is securely tightened.
13. Ensure that no obstruction, such as a wire handle or a retaining latch, prevents proper seating of gasket or closure of access door.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) access door is sealed with a hollow D-strip gasket. Take care not to tear or damage this gasket when opening or closing the access door. Ensure that this gasket is properly aligned before closing door and securing fasteners.

14. Carefully align and close access door and hold it shut.

NOTE

Loosely thread all six (6) captive fasteners before any one fastener is completely tightened, or remaining fasteners may be difficult to thread.

15. Loosely thread all six (6) captive fasteners on access door.
16. Tighten all six (6) captive fasteners evenly and securely on access door.

INSTALLATION–Continued

17. Perform AN/UYK-128(V) Computer startup and login procedures.

NOTE

Touchscreen Calibration also serves as a functional check of the Removable Hard Disk Drive Cartridge (RHDDC).

18. Perform Touchscreen Calibration if a new RHDDC has been installed in the PU.
19. Install lock on PU if required.
20. Install chain on the guard (HMMWV only) if required.
21. Close PU guard/kick plate (M548A3 VOLCANO only).

NOTE

If the Removable Hard Disk Drive Cartridge (RHDDC) in the AN/UYK-128(V) Computer has been replaced, platform Role/ID may be incorrect and must be reconfigured. Otherwise incoming Command and Control (C2) messages will not be able to be received. In addition, incorrectly relayed information due to wrong platform Role/ID on the vehicle's computer may adversely impact message flow between different echelons.

22. Check Role Configuration and reconfigure the AN/UYK-128(V) Computer to a new Role/ID, if necessary.

INSTALLATION

INSTALL THE REMOVABLE HARD DISK DRIVE CARTRIDGE (RHDDC) (NSN 7025-01-474-3789/NSN 7025-01-487-0580)

The following are the procedures necessary to replace the RHDDC NSN 7025-01-474-3789/NSN 7025-01-487-0580 in PU NSN 7021-01-474-3793/NSN 7021-01-487-0578/NSN 7021-01-496-4263. With this configuration, the RHDDC is located on the interior right side of the PU.

1. Shut down the AN/UYK-128(V) Computer.
2. Open PU guard/kick plate (M548A3 VOLCANO only).
3. Remove chain from the guard (HMMWV only) if not already accomplished.
4. Remove lock from PU if not already accomplished.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) access door is sealed with an O-ring gasket. Take care not to tear or damage this gasket when opening or closing the access door. Ensure that this gasket is properly aligned before closing door and securing fasteners.

5. Loosen completely all four (4) captive fasteners on the RHDDC access door.
6. Open the RHDDC access door completely.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) in Processor Unit (PU) NSN 7021-01-474-3793/NSN 7021-01-487-0578/NSN 7021-01-496-4263 is located on the interior right side. If the RHDDC is located on the left side of PU, refer to the proper installation procedure.

7. Remove the RHDDC from protective carrying case.

INSTALLATION–Continued

8. Pull down the RHDDC latching handle and grasp it so that the label on the RHDDC faces upward (i.e., toward top of PU).

NOTE

The Processor Unit is mounted up side down in the M985/978/1074/1075/1120 HEMTT/PLS/LHS. Make sure that the RHDDC is in the same plane (up side down) during installation.

9. Insert the RHDDC into the right slot and carefully slide into place while applying steady pressure until fully seated. (If necessary, slightly rock cartridge back and forth to seat it.)
10. Rotate the RHDDC latching handle up to lock the cartridge into place.

NOTE

Ensure that no obstruction, such as latching handle, prevents proper seating of gasket or closure of access door.

NOTE

The Removable Hard Disk Drive Cartridge (RHDDC) access door is sealed with an O-ring gasket. Take care not to tear or damage this gasket when opening or closing the access door. Ensure that this gasket is properly aligned before closing door and securing fasteners.

11. Carefully align and close the access door and hold it shut

NOTE

Loosely thread all four (4) captive fasteners before any one fastener is completely tightened, or remaining fasteners may be difficult to thread.

12. Loosely thread all four (4) captive fasteners on access door.
13. Tighten all four (4) captive fasteners evenly and securely on the access door.
14. Perform AN/UYK-128(V) Computer startup and login procedures.

NOTE

Touchscreen Calibration also serves as a functional check of the Removable Hard Disk Drive Cartridge (RHDDC).

15. Perform Touchscreen Calibration if a new RHDDC has been installed in the PU.
16. Install lock on PU if required.
17. Install chain on the guard (HMMWV only) if required.
18. Close PU guard/kick plate (M548A3 VOLCANO only).

NOTE

If the Removable Hard Disk Drive Cartridge (RHDDC) in the AN/UYK-128(V) Computer has been replaced, platform Role/ID may be incorrect and must be reconfigured. Otherwise incoming Command and Control (C2) messages will not be able to be received. In addition, incorrectly relayed information due to wrong platform Role/ID on the vehicle's computer may adversely impact message flow between different echelons.

INSTALLATION–Continued

19. Check Role Configuration and reconfigure the AN/UYK-128(V) Computer to a new Role/ID, if necessary.

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

STANDARD INTEGRATED COMMAND POST SHELTER (SICPS) TENT SYSTEM

INITIAL SETUP:

WARNING

The SICPS TENT system weighs 152 lbs., qualifying the system as a four-person lift. When moving the TENT system, ensure that proper assistance is available. Failure to comply may result in injury to personnel.

WARNING

The SICPS TENT system with cover removed weighs 115 lbs., and qualifies as a three-person lift. When moving the TENT system, ensure that proper assistance is available. Failure to comply may result in injury to personnel.

ASSEMBLY AND PREPARATION FOR USE

The Standard Integrated Command Post Shelter (SICPS) TENT system is shown in the following figure. The SICPS TENT system design consists of a ruggedized plastic (composite) transit case which houses the AN/UYK-128(V) Computer. The design allows for convenient transportation, setup, and tear down of this equipment in a temporary, but stationary environment. Upon assembly, users have the option to attach the four (4) aluminum legs to elevate the base of the unit. The SICPS TENT system can also be set up on a table, without the detachable legs. A keyboard tray slides out to provide an optional work surface. The top of the transit case serves as a padded seat for the operator. Additionally, the transit case is equipped with lifting handles necessary to transport the SICPS TENT system.

ASSEMBLY AND PREPARATION FOR USE–Continued

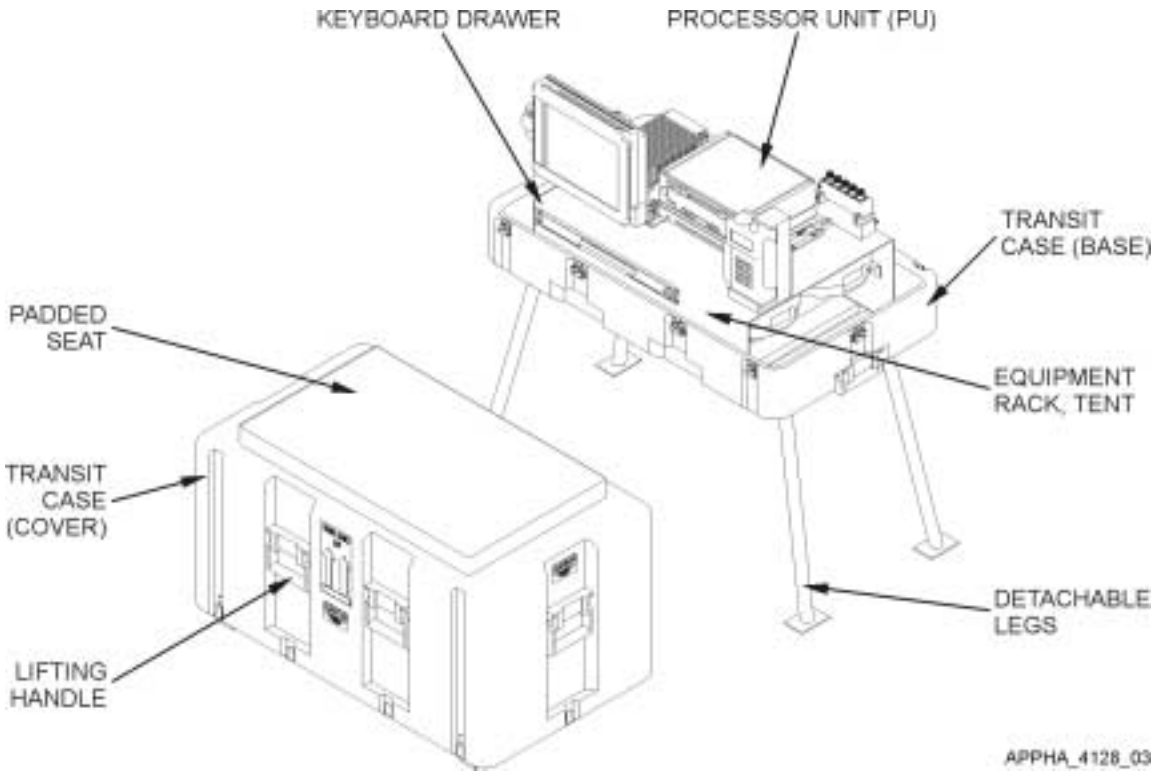


Figure 1 **SICPS Tent System**

The following figure provides a closer view of the equipment components, which comprise the SICPS TENT system, as properly installed on the base of the transit case.

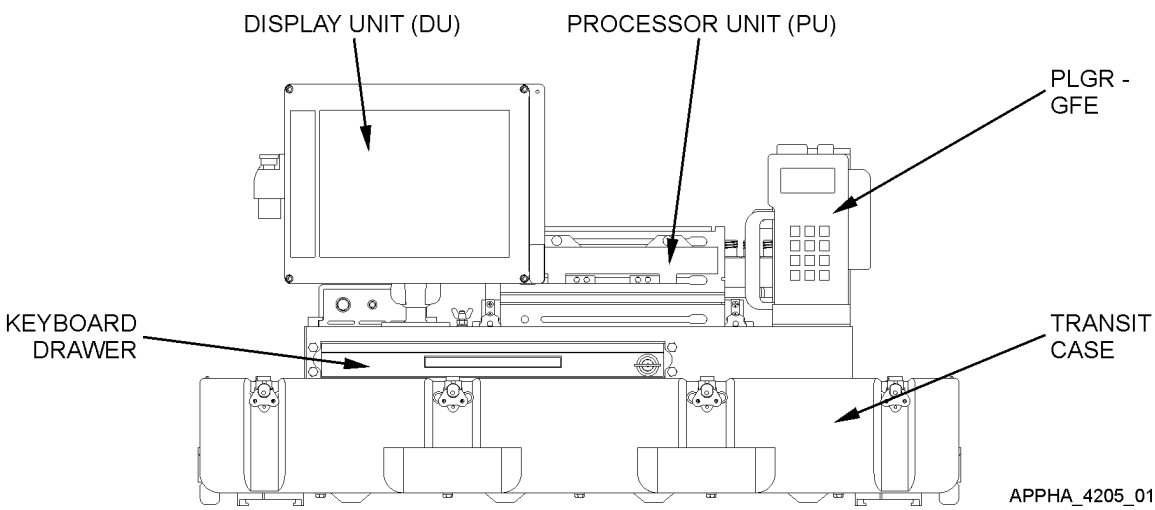


Figure 2 **SICPS Tent System Components**

ASSEMBLY AND PREPARATION FOR USE–Continued

Sicps Tent Installation Kit. The SICPS TENT Installation Kit (A-Kit) provides the unique hardware items necessary to install the AN/UYK-128(V) Computer components into the SICPS TENT portable transit case. The A-Kit provides the support hardware, mechanical and electrical interfaces required to mount the computer hardware (B-Kit) needed to operate the AN/UYK-128(V) Computer. The Installation Kit (A-Kit) for the SICPS TENT consists of the following major components:

Mounting brackets
Transit Case
Detachable Legs
Cables

Cables. The A-Kit is comprised of several electrical/electronic components, as well as equipment mounting brackets and attaching hardware. The TENT equipment may be operated using two different power sources. Power cable W1A may be connected to a 32 Volts Direct Current (VDC) power source, such as a vehicle. Power cable W1B may be connected to a 120 Volts Alternating Current (VAC) facility or AC generator power source. These power cables are on reel assemblies mounted beneath the TENT equipment rack.

The main cables that support operation of the AN/UYK-128(V) Computer interface with the TENT unit internally and externally.

Four separate ground straps provide safety grounds for the PU, EPM, DU, and PLGR.

The following figure, SICPS TENT System Cable Routing, depicts these main cable connections.

ASSEMBLY AND PREPARATION FOR USE–Continued

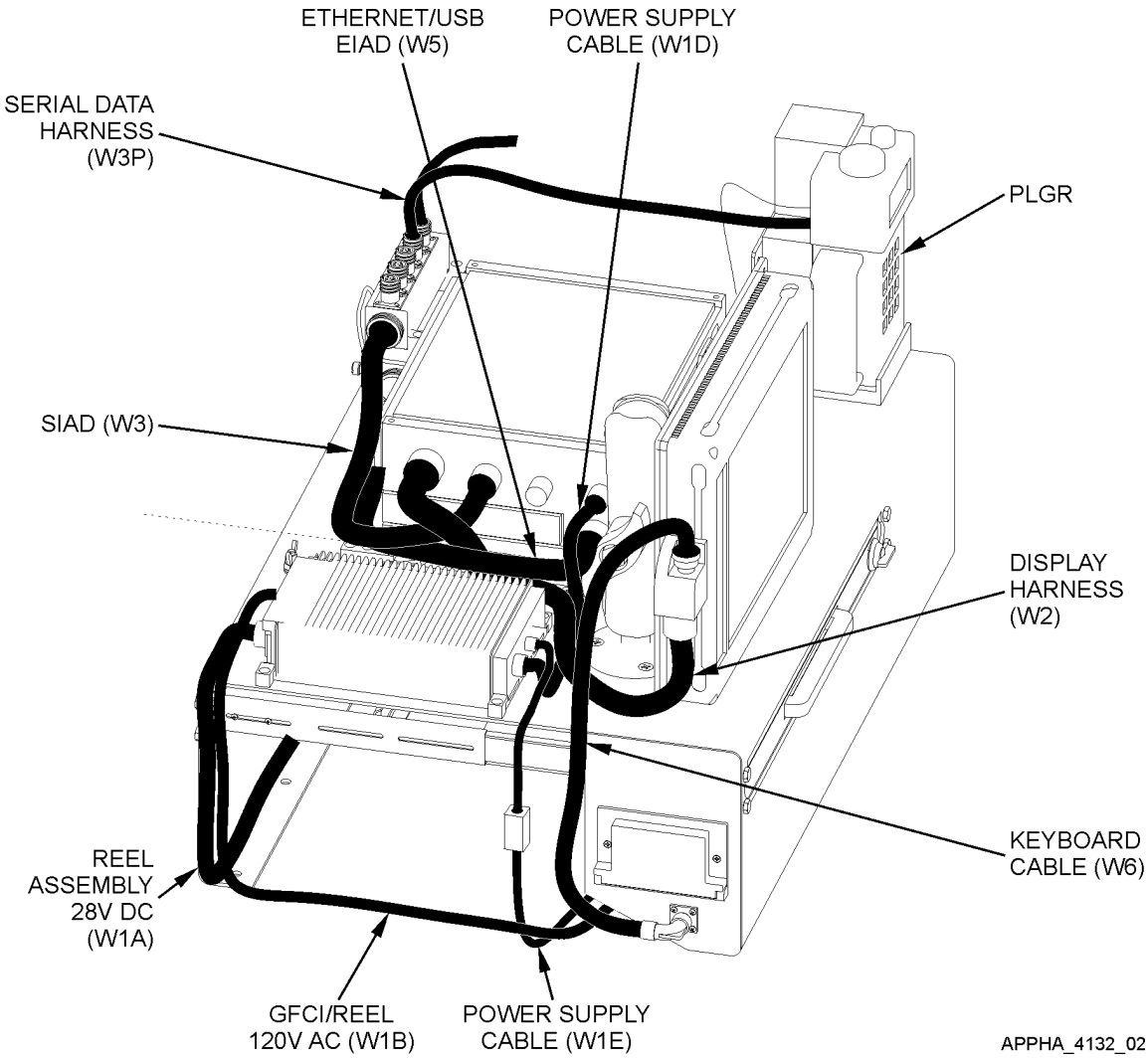


Figure 3 **SICPS Tent System Cable Routing (Side View)**

Connectors. Military Standard 38999K connectors are used. All connectors are keyed and sized differently to preclude accidental mismatching. Each connector is coded with a J number (e.g., J1, J2, and etc.). The power receptacle is designed such that it is virtually impossible to receive shock or burn injuries during disconnect. There is no voltage/current when connectors are disconnected. All cables are plastic- or rubber-coated to prevent shorting or arcing.

Grounding. All external parts and surfaces are at ground potential. AN/UYK-128(V) Computer components are grounded to brackets as part of the A-Kit on the SICPS TENT system. Grounding is done with braided grounding straps and $\frac{1}{4}$-20 grounding lugs and wing nuts, one lug each for the Processor Unit (PU), External Power Module (EPM), and Display Unit (DU). Government Furnished Equipment (GFE) grounding straps are used to ground the system to the main ground.

Power Sources. The SICPS TENT system can utilize power from two different sources: The Single Channel Ground and Airborne Radio System (SINCGARS) or from a vehicle platform. One power source is the SINCGARS, operating at 28 Volts Direct Current (VDC). From the SINCGARS, power goes through the EPM converter, providing 32 V output for the PU and PLGR.

The other power source can be provided from nearby vehicle platforms. A GFE External Power Module (EPM) acts as a DC/AC inverter providing 120 VAC from these platforms. Power goes through the Ground Fault Circuit Interrupter (GFCI) and then the

ASSEMBLY AND PREPARATION FOR USE–Continued

EPM provides 32 volts for the PU and PLGR. In the event of a ground fault, the GFCI stops the flow of electricity, protecting personnel from electrical shock hazards.

SICPS TENT TRANSIT CASE SETUP

WARNING

The SICPS TENT system weighs 152 lbs., qualifying the system as a four-person lift. When moving the TENT system, ensure that proper assistance is available. Failure to comply may result in injury to personnel.

WARNING

The SICPS TENT system with cover removed weighs 115 lbs., and qualifies as a three-person lift. When moving the TENT system, ensure that proper assistance is available. Failure to comply may result in injury to personnel.

WARNING

Ensure SICPS TENT is properly assembled. Ensure legs are properly installed with feet extending away from the base and placed on stable ground. Improper set up can cause system to tip over, resulting in equipment damage and possible injury to personnel.

WARNING

For SICPS TENT system set up/workstation location, ensure detachable legs and system cables are out of walkways and do not pose trip or snag hazards. Failure to comply may cause injury to personnel or damage to the equipment.

CAUTION

Ensure that the transit case remains in the upright position. Failure to comply may result in equipment damage.

Complete the following procedures to set up the SICPS TENT Transit Case.

1. Release and open 10 draw latches.
2. Remove transit case cover.
3. Turn cover so that opening is up.
4. Unsnap and remove seat cushion.

ASSEMBLY AND PREPARATION FOR USE–Continued

5. Remove four (4) legs from foam inserts inside transit case cover.
6. Turn cover so that it is on its side.
7. Using three-person lift, pick up lower case containing mounted system equipment and set on cover centered at right angle.
8. Using top base of each leg, depress spring-loaded push-button and slide four (4) legs into slotted corner support brackets of lower case with foot pointing outward towards corner.
9. Ensure spring-loaded push-button secures top of each leg in slotted bracket.
10. Using three-person lift, remove lower case from cover and position equipment for use.
11. Position cover with opening down on keyboard side of system.
12. Install foam cushion on top of cover and secure with four (4) snap fasteners.
13. Open captive drain plug on unit's base to drain any condensation or water from base.

ADJUSTMENT

ADJUST DISPLAY UNIT (DU)

1. Loosen RAM-Ball knob on back of Display Unit.
2. When RAM-Ball socket is upright, RAM-Ball knob normally faces left side of TENT equipment rack.
3. Raise RAM-Ball socket upright, pivot socket arm so that knob is on left side, and simultaneously rotate display 180 degrees so it is upright and aligned to front of unit.
4. Adjust display to desired viewing angle.
5. Tighten RAM-Ball knob to secure DU in position.

PLACING IN SERVICE

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or damage to the equipment.

CAUTION

Inspect cables and connectors to ensure that there is no damage to equipment. Inspect all connections (including grounds) to ensure that connectors are properly mated and secure. Failure to comply could result in equipment damage.

NOTE

Not all TENT system cables are disconnected when the unit is stowed. TENT system cables that are disconnected, however, are coiled and stowed in the base of the transit case beneath the power cable reel assemblies.

NOTE

Only the blue band should be visible on a properly mated connector. If the red band is showing, the connectors are not properly mated.

CONNECT W2 DISPLAY CABLE AND GROUND STRAP

The W2 display cable connects the AN/UYK-128(V) Computer to the Display Unit (DU) and supplies power and signals to the DU and Keyboard Unit (KU).

1. Remove protective cap from PU J4 connector.
2. Connect W2-P1 display cable connector to PU J4 connector.
3. Remove protective cap from display J1 connector.
4. Connect W2-P2 display cable connector to display J1 connector.
5. Bundle DU braided ground strap along W2 display cable from the display ground stud to the ground stud at the back of the TENT equipment rack.
6. Secure display ground strap with wing nuts at both ends.
7. Secure display ground strap to W2 display cable as necessary using tie-wraps.
8. Inspect and ensure DU, PU, and External Power Module (EPM) ground straps are securely fastened to TENT equipment rack ground terminal.
9. Connect TENT system securely to an earth ground or to an auxiliary main line.

CONNECT W6 BULKHEAD KEYBOARD CABLE

The W6 keyboard bulkhead cable connects to the TENT bulkhead connector on the side of the equipment rack and extends the keyboard input cable to the DU.

PLACING IN SERVICE–Continued

1. Connect W6-P1 keyboard bulkhead cable connector to the TENT bulkhead connector on the side of the equipment rack, below the Ground Fault Circuit Interrupter (GFCI) receptacle. This cable may remain connected when TENT system is stowed.
2. Remove protective cap from display J2 connector.
3. Connect W6-P2 keyboard bulkhead cable connector to display J2 connector.
4. Secure W6 cable with tie wraps as necessary.

INSPECT W3 SERIAL INTERFACE ADAPTER DEVICE (SIAD)

The W3 cable, or Serial Interface Adapter Device (SIAD), breaks out time and position information from the Precision Lightweight GPS Receiver (PLGR) over the W3P cable. It also provides duplex communication between the external, or vehicle-mounted, Internet Controller (INC) and radios through the W3N cable.

1. Inspect and ensure SIAD is securely mounted at back corner of equipment rack, along side PU, and on top of W5 Expansion Interface Adapter Device (EIAD).
2. Inspect and ensure SIAD P1 cable connector is connected to PU J3 serial connector. This connector normally remains connected when TENT system is stowed.
3. Inspect and ensure W3N INC cable connector is securely connected to SIAD J1 connector. This connector normally remains connected when TENT system is stowed.
4. Inspect and ensure W3P PLGR cable connector is securely connected to SIAD J2 connector. This connector normally remains connected when TENT system is stowed.

CONNECT W3N INC CABLE TO SINCGARS/INC

1. Access SINCGARS/INC unit of interfacing external platform.
2. Connect W3N-P2 INC serial cable connector to SINCGARS/INC A2-J6 connector.

CONNECT W3P PLGR CABLE TO PLGR

NOTE

The PLGR may be removed from its mount on the left front corner of the TENT equipment rack for use or storage elsewhere. If TENT unit is not equipped with a PLGR, obtain one from storage and perform following steps. If TENT unit is equipped with a PLGR, ensure the following PLGR installation and cable connections are correct and secure.

1. Unfasten over-center latch and lift PLGR out of mounting bracket.
2. Connect W3P-P2 PLGR cable connector to PLGR J2 connector using an offset flat-tip screwdriver.
3. Connect W1E-P2 PLGR power cable connector (from EPM) to PLGR J4 connector.
4. Connect user-provided PLGR remote RF antenna cable to PLGR J1 antenna jack and tighten single thumbscrew.
5. Install PLGR into mounting bracket and fasten over-center latch.
6. Connect PLGR ground strap quick-disconnect into ground strap on PLGR mounting plate.

INSPECT W5 EXPANSION INTERFACE ADAPTER DEVICE (EIAD)

The W5 cable, or Expansion Interface Adapter Device (EIAD), allows the Tent unit to function in a Tactical Operations Center (TOC) configuration. The W5 Expansion Interface Adapter Device (EIAD) cable provides capability for the TENT system to be connected to other platforms via the J1 Ethernet or Local Area Network (LAN) connector, or to other computers via the J2 Universal Serial Bus (USB) connector. The cables routed to the TENT system ETH J1 connector and/or USB J2 connector are user-provided.

1. Inspect and ensure the Expansion Interface Adapter Device (EIAD) is securely mounted on its side at the rear of the TENT equipment rack along side the PU.

PLACING IN SERVICE–Continued

2. Inspect and ensure the W5-P1 EIAD cable connector is securely connected to the PU J5 connector. This connector normally remains connected when TENT system is stowed.

INSPECT POWER CABLES W1A, W1C, W1D, AND W1E

The W1C 120 VAC power cable is routed from the outlet of the Ground Fault Circuit Interrupter (GFCI) receptacle beneath the TENT equipment rack and provides 120 VAC to the External Power Module (EPM).

The W1D cable provides 28 VDC vehicle power or converted (120 VAC) facility power from the EPM to the AN/UYK-128(V) Computer and subassemblies.

The W1E cable provides 28 VDC vehicle power or converted facility power from the EPM to the Precision Lightweight GPS Receiver (PLGR).

Normally, the W1A, W1B, W1C, W1D, and W1E power cables remain connected when the TENT equipment is stowed, provided the PLGR is not removed from the equipment rack.

1. Inspect and ensure W1A-P2 power cable connector (28 VDC) is securely connected to the EPM J2 connector. The W1A-P2 power cable connector normally remains connected to the EPM J2 connector when the TENT system is stowed.
2. Inspect and ensure W1C-P1 power cable (120 VAC) connector is securely connected to the EPM J1 connector. The W1C-P1 power cable connector (from the GFCI receptacle outlet) normally remains connected to the EPM J1 connector when the TENT system is stowed.
3. Inspect and ensure W1D-P1 power cable connector is securely connected to the EPM J3 connector. Normally, this cable remains connected when the TENT system is stowed.
4. Inspect and ensure W1D-P2 power cable connector is securely connected to PU J1 connector. Normally, this cable remains connected when the TENT system is stowed.
5. Inspect and ensure W1E-P1 PLGR power cable connector is securely connected to the EPM J4 connector. Normally, this cable remains connected when the TENT system is stowed, provided the PLGR is not removed from the equipment rack.
6. Inspect and ensure W1E-P2 PLGR power cable connector is securely connected to the PLGR J4 connector. Normally, this cable remains connected when the TENT system is stowed, provided the PLGR is not removed from the equipment rack.

PLACING IN SERVICE–Continued

CONNECT AND INSPECT TENT SYSTEM GROUND CABLES

CAUTION

Before powering up system, make sure all devices are properly grounded to grounding lug on SICPS TENT system and that SICPS TENT system is properly grounded to an auxiliary main line. Failure to comply could result in equipment damage.

NOTE

Three ground straps must be fastened to the TENT equipment rack ground terminal: One each for the PU, DU, and External Power Module (EPM). The PLGR unit also must be grounded to the metal mounting plate.

NOTE

When the TENT equipment is set up on its legs or used on a tabletop, a user-provided earth ground must be connected from the ground terminal at the back of the TENT equipment rack to the ground stake or an auxiliary main line.

NOTE

The External Power Module (EPM) ground strap is connected to the ground terminal at the rear of the TENT equipment rack. Additional ground straps from the PU and DU also are connected to the equipment rack ground terminal.

1. Inspect and ensure that the EPM, PU, and DU ground straps are securely fastened to the TENT equipment rack ground terminal.
2. Connect TENT system securely to an earth ground or to an auxiliary main line.

PLACING IN SERVICE–Continued
CONNECT W1A (28 VDC) OR W1B (120 VAC) POWER CABLE

NOTE

The TENT system may be operated using two different power sources. Power cable W1A may be connected to a 28 VDC power source, such as a vehicle. Power cable W1B may be connected to a 120 VAC facility or AC generator. These power cables are on reel assemblies mounted beneath the TENT equipment rack. Cable W1A-P1 (28 VDC), which has a 90-degree SINCGARS/INC power connector, is mounted on the right side at the rear of the unit. Cable W1B-P1 (120 VAC), with a three-prong AC plug, is mounted at the right front.

NOTE

The W1B power cable (120 VAC) is mounted on a reel assembly on the right front of the TENT unit, and is plugged into a facility or generator receptacle. The other end of the W1B power cable is permanently wired to the Ground Fault Circuit Interrupter (GFCI) receptacle inlet.

NOTE

If the Ground Fault Circuit Interrupter (GFCI) requires resetting, the operator must open the receptacle cover and press the extended GFCI switch to reset the circuit. If the GFCI switch does not remain set with power applied, notify Unit Maintenance.

1. For a 28 VDC power source, access the source vehicle's SINCGARS Vehicle Amplifier Adapter (VAA).
2. Unlatch and slide forward the VAA from Mounting Base (MB) per TM 11-5820-890-10-8, if required for access to power connector.
3. Pull W1A-P1 power cable from rear reel and connect W1A-P1 cable connector to MB (MT-6352/VRC) A4-J2 connector. (The W1A-P2 power cable connector normally remains connected to the EPM J2 connector.)
4. Slide SINCGARS VAA back into MB and fasten per TM 11-5820-10-8, if required.
5. For a 120 VAC power source, pull W1B power cable from front reel and plug into facility or generator receptacle. (The other end of the W1B power cable is permanently wired to the GFCI receptacle inlet.)

SET UP KEYBOARD UNIT (KU)

NOTE

If keyboard drawer is damaged, return TENT unit to contractor for depot repair.

1. Turn keyboard drawer wing handle latch counter clockwise $\frac{1}{4}$ turn. Inward pressure on the drawer may be required to unlatch the pawl.
2. Pull drawer outward until fully open and spring latches engage. Keyboard may be positioned for use inside or outside of drawer.
3. To remove keyboard from drawer, loosen thumbscrew on left side of tray cover inside of drawer, and raise tray cover.
4. Slide keyboard toward tray and lift bottom edge of keyboard to lift keyboard out of drawer.
5. Close tray cover.
6. Select desired keyboard position as follows:
    1. Flat on top of tray
    2. At an angle with KU grip placed over the two (2) cap nuts at front edge of TENT equipment rack
    3. Balanced on operator's lap

PLACING IN SERVICE–Continued

Startup And Operate AN/UYK-128(V) Computer

CAUTION

Inspect cables and connectors to ensure that there is no damage to the equipment. Inspect all connections (including ground) to ensure that connectors are properly mated and secure. Failure to comply may cause equipment damage.

CAUTION

Before powering up system, make sure all devices are properly grounded to grounding lug on SICPS TENT system and that SICPS TENT system is properly grounded to an auxiliary main line. Failure to comply could result in equipment damage.

1. Startup and initialize all peripheral equipment and the AN/UYK-128(V) Computer in accordance with proper procedures, see WP 0005 00 STARTUP/SHUT DOWN.

DISASSEMBLY

SICPS TENT SYSTEM TEAR DOWN AND STOWING

NOTE

Not all TENT system cables are disconnected when the unit is stowed. TENT system cables that are disconnected, however, are coiled and stowed in the base of the transit case beneath the power cable reel assemblies.

Complete the following procedures to tear down the SICPS TENT system.

The following cables and ground straps remain connected and in place at one or both ends when the TENT system is torn down for transport or stowage:

1. W1A-P2 (28 VDC) power cable to EPM J2.
2. W1B-P2 (120 VAC) power cable to GFCI receptacle (permanent).
3. W1C power cable to GFCI (permanent) and W1C-P1 to EPM J1.
4. W1D-P1 power cable to EPM J3 and W1D-P2 to PU J1.
5. W1E-P1 PLGR power cable to EPM J4 and W1E-P2 to PLGR J4 (if PLGR not is removed).
6. SIAD W3-P1 serial cable to PU J3.
7. W3N-P1 INC serial cable to W3 SIAD J1.
8. W3P-P1 PLGR serial cable to W3 SIAD J2 and W3P-P2 to PLGR J2 (if PLGR is not removed).
9. W5-P1 EIAD to PU J5.
10. PU and EPM ground straps remain connected at both ends.
11. DU ground strap remains connected at TENT equipment rack terminal, but is disconnected at DU.

DISASSEMBLY–Continued
Power Down AN/UYK-128(V) Computer

WARNING

Do not disconnect or connect any cables without first properly powering down the system and turning off all power. Where applicable, always disconnect the ground cable last when disassembling and always connect the ground cable first when assembling. Failure to comply may cause injury to personnel or damage to the equipment.

1. Power down all peripheral equipment and the AN/UYK-128(V) Computer in accordance with the proper procedures. Refer to WP 0005 00 STARTUP/SHUT DOWN.
2. For a 120 VAC power source, unplug W1B-P1 three-prong plug from facility or generator receptacle.
3. Guide W1B-P1 cable onto reel assembly at front right side of unit and ensure cable retracts to rubber stopper for proper stowage. (The other end of the W1B power cable is permanently wired to the GFCI receptacle.)
4. For a 28 VDC power source, access the source vehicle's SINCGARS VAA.
5. Unlatch and slide forward the VAA from MB per TM 11-5820-890-10-8, if required for access to power connector.
6. Disconnect W1A-P1 power cable connector from external platform MB (MT-6352/VRC) A4-J2 connector.
7. Slide SINCGARS VAA back into MB and fasten per TM 11-5820-10-8, if required.
8. Guide W1A-P1 cable onto reel assembly on rear right side of unit and ensure cable retracts to rubber stopper for proper stowage. (The W1A-P2 power cable connector normally remains connected to the EPM J2 connector.)

STOW KEYBOARD UNIT (KU) IN DRAWER

1. If keyboard has been removed from drawer, raise drawer tray cover.
2. Place KU grip snugly in slot at back of drawer and set flat in front of tray. KU must be fully to back of drawer to close tray cover.
3. Ensure KU cable is fed through opening at back of drawer to prevent pinching, cutting, or damage when drawer is closed.
4. Close tray cover and tighten thumbscrew.
5. Press in drawer locking spring latches on drawer side rails and slide drawer closed.
6. Turn wing handle latch $\frac{1}{4}$ turn clockwise until pawl is latched closed to secure keyboard drawer. Inward pressure may be required to right side of drawer to engage pawl.

DISCONNECT AND STOW W6 KEYBOARD BULKHEAD CABLE

NOTE

Note cable routing and tie-wrap locations before removing cable or tie-wraps.

NOTE

Cable attached to keyboard remains connected to keyboard in drawer and at back of keyboard bulkhead connector behind equipment rack.

1. Disconnect W6-P2 keyboard bulkhead cable connector from display J2 connector.
2. Install protective cap on display J2 connector.
3. Disconnect W6-P1 keyboard bulkhead cable connector from TENT bulkhead connector on the side of equipment rack.

DISASSEMBLY–Continued

4. Remove tie-wraps securing W6 cable, as necessary, using diagonal wire cutters.
5. Remove and stow W6 keyboard bulkhead cable under TENT equipment rack.

DISCONNECT W1E-P2 PLGR POWER CABLE

NOTE

If the PLGR remains installed in the TENT system during transit or stowage, perform steps 1 through 3.

NOTE

The PLGR may be removed from its mount on the left front corner of the TENT equipment rack for use or storage elsewhere. If PLGR is removed from TENT system, perform all of the following steps.

1. Disconnect W1E-P2 PLGR power cable connector from PLGR J4 connector.
2. Install protective connector cover on PLGR J4 connector.
3. Stow W1E-P2 PLGR power cable end under TENT equipment rack.
4. Disconnect quick-disconnects from PLGR and mounting plate ground straps.
5. Unfasten over-center latch and remove PLGR from mounting bracket.
6. Disconnect W3P-P2 PLGR cable connector from PLGR J2 connector using an offset flat-tip screwdriver.
7. Loosen thumbscrew and disconnect user-provided PLGR remote RF antenna cable from PLGR J1 antenna jack.
8. Stow W3P-P2 PLGR cable end under TENT equipment rack.
9. Turn in or stow PLGR and RF antenna cable as required.

DISCONNECT AND STOW W3N SINCGARS/INC CABLE

1. Access SINCGARS/INC unit of interfacing external platform.
2. Disconnect W3N-P2 INC serial cable connector from SINCGARS/INC A2-J6 connector.
3. Stow W3N SINCGARS/INC cable end under TENT equipment rack.

DISCONNECT AND STOW W2 DISPLAY CABLE

NOTE

Note cable routing to outside and behind External Power Module (EPM) and location of tie-wraps before removing cable or tie-wraps.

1. Disconnect W2-P2 display cable connector from display J1 connector.
2. Install protective cap on display J1 connector.
3. Disconnect W2-P1 display cable connector from PU J4 connector.
4. Install protective cap on PU J4 connector.
5. Remove tie-wraps securing W2 display cable and DU ground strap, as necessary, using diagonal wire cutters.
6. Remove and Stow W2 Display Cable Under TENT Equipment Rack.

DISASSEMBLY–Continued

DISCONNECT DISPLAY UNIT (DU) GROUND STRAP

NOTE

The Display Unit (DU) ground strap is disconnected from the bottom of the display, but remains connected to the TENT equipment rack ground terminal. The Processor Unit (PU) and External Power Module (EPM) ground straps remain connected at both ends.

1. Remove wing nut and lock washer from ground stud on bottom of display unit.
2. Remove ground strap from DU and secure wing nut and lock washer on display ground stud.
3. Stow loose end of DU ground strap in space between EPM and PU connectors.
4. Remove wing nut and lock washer from ground terminal on TENT equipment rack and remove external earth ground.
5. Reinstall wing nut and lock washer on TENT equipment rack ground terminal.

STOW DISPLAY UNIT (DU)

1. Loosen RAM-Ball knob and support DU in upright position. (Knob should be on the left. If not, lift DU face up 90 degrees and pivot RAM-Ball socket so knob is on left side.)
2. Lift DU face up 90 degrees and allow RAM-Ball socket to pivot forward and down almost 90 degrees.
3. Swivel RAM-Ball socket to right side so it lies parallel to front of PU door.
4. Pivot the display counter clockwise another 90 degrees, and rest DU on top of PU with bottom of DU to back of TENT equipment rack.
5. Keep DU face up and flat with display side buttons to the right.
6. Tighten knob as RAM-Ball socket is laid down to secure display.
7. Ensure connector protective cap are installed on DU J1 and J2 connectors.

DISASSEMBLY–Continued

SECURE TENT TRANSIT CASE

WARNING

The SICPS TENT system weighs 152 lbs., qualifying the system as a four-person lift. When moving the TENT system, ensure that proper assistance is available. Failure to comply may result in injury to personnel.

WARNING

The SICPS TENT system with cover removed weighs 115 lbs., and qualifies as a three-person lift. When moving the TENT system, ensure that proper assistance is available. Failure to comply may result in injury to personnel.

CAUTION

Ensure that the transit case remains in the upright position. Failure to comply may result in equipment damage.

1. Open drain plug on TENT unit's base and allow any condensation or water to drain, if not already accomplished.
2. Wipe away any residual moisture from base with a dry cloth before stowing disconnected cables.
3. Unsnap four (4) fasteners and remove foam seat cushion from TENT transit case cover.
4. Turn cover so that it is on its side.
5. Using three-person lift, pick up lower case containing mounted system equipment and set at right angle on cover.
6. Depress spring-loaded push-button and slide each of four (4) legs from slotted corner support brackets of lower case.
7. Using three-person lift, remove lower case from cover and position equipment to secure cover.
8. Turn cover so that opening is up.
9. Stow four (4) legs in fitted foam inserts inside transit case cover.
10. Stow seat cushion and secure with four (4) snap fasteners.
11. Place TENT transit case cover over lower equipment case. Ensure cover is aligned properly with gasket seal.
12. Latch and secure ten (10) draw latches.

END OF WORK PACKAGE

CHAPTER 5

OPERATOR MAINTENANCE

SUPPORTING INFORMATION

FOR

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2)

CHAPTER 5

OPERATOR MAINTENANCE SUPPORTING INFORMATION

WORK PACKAGE INDEX

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

REFERENCES

Scope

This work package lists the forms, technical bulletins, technical manuals and miscellaneous publications referenced in this manual.

FORMS

DA Form 2404	Equipment Inspection and Maintenance Worksheet
DA Form 5988E	Automated Equipment Inspection and Maintenance Worksheet
DA Form 2407	Maintenance Request
DA Form 2028	Recommended Changes to Publications
SF 368	Product Quality Deficiency Report

TECHNICAL MANUALS

TM 11-5820-890-10	SINCGARS ASIP
TM 11-5825-283-10	Enhanced Position Location Reporting System
TM 11-5825-291-13	Satellite Signals Navigation Set AN/PSN-11
TB 11-7010-326-20	Technical Bulletin Installation Kit Support and Maintenance Manual
TM 750-244-2	Procedures for Destruction of Electronic Materiel to Prevent Enemy Use
TM 11–5820–1130–12&P	Radio Set AN/PSC-5 (MILSATCOM)
TB 11–7010–326–10	Operator's Pocket Guide for Force XXI Battle Command Brigade-And-Below (FBCB2) Computer Set, Digital AN/UYK-128(V)
TM 11–7010–326–30&P	Direct Support Maintenance Manual for Force XXI Battle Command Brigade-And-Below (FBCB2) Computer Set, Digital AN/UYK-128(V)

MISCELLANEOUS PUBLICATIONS

AR 380-19	Information Systems Security
AR 380-5	Department of the Army Information Security Program
DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms
DA PAM 738-750	The Army Maintenance Management System
DOD-STD 1686	ESDS Device Handling Procedures
MIL-HDBK-783 (EA)	Chemical and Biological (CB) Contamination Avoidance and Decontamination
FM 3-5	NBC Decontamination
MIL-STD-40051A(TM)	Preparation of Digital Technical Information for Multi-Output Presentation of Technical Manuals
MIL-STD-2361	Digital Publications Development
DTD	Document Type Definition
FOSI	Formatting Output Specification Instance
SUM	Software User's Manual
DTD/MDL	Data Transfer Device/Mission Data Loader
Toughbook	Ruggedized Laptop Computer

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

INTRODUCTION

Scope. This work package lists Components of End Item (COEI) and Basic Issue Items (BII) for the AN/UYK-128(V) Computer to help you inventory items required for safe and efficient operation of the equipment.

General. The COEI and BII information is divided into the following sections:

Components of End Item (COEI). This list is for informational purposes only and is not authority to requisition replacements. These items are part of the AN/UYK-128(V) Computer. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These are the minimum essential items required to place the AN/UYK-128(V) Computer into operation. Although shipped separately packaged, BII must be with the AN/UYK-128(V) Computer during operation and whenever it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement, based authorization of the end item by the Table of Organization & Equipment (TOE)/Modified Table of Organization & Equipment (MTOE). Illustrations are furnished to help you find and identify the items.

Explanation of Columns. The following provides an explanation of columns found in the tabular listing:

Column (1) -Illustration Number (Illus No.). Indicates the number of the illustration in which the item is shown.

Column (2) -National Stock Number (NSN). Indicates the NSN assigned to the item and is used for requisitioning purposes.

Column (3) -Description, CAGEC, and P/N. Indicates the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the Commercial and Government Entity Code (CAGEC) (in parentheses) and then the Part Number (P/N).

Column (4) -Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Table 0. COEI/BII Usable On Code

CODE	USED ON
31G	Model AN/UYK-128(V)1
31H	Model AN/UYK-128(V)2
31G/31H	Models AN/UYK-128(V)1-(V)2

Column (5) -Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number (NSN) shown in column (2).

Column (6) -Qty. Req'd. Indicates the quantity required.

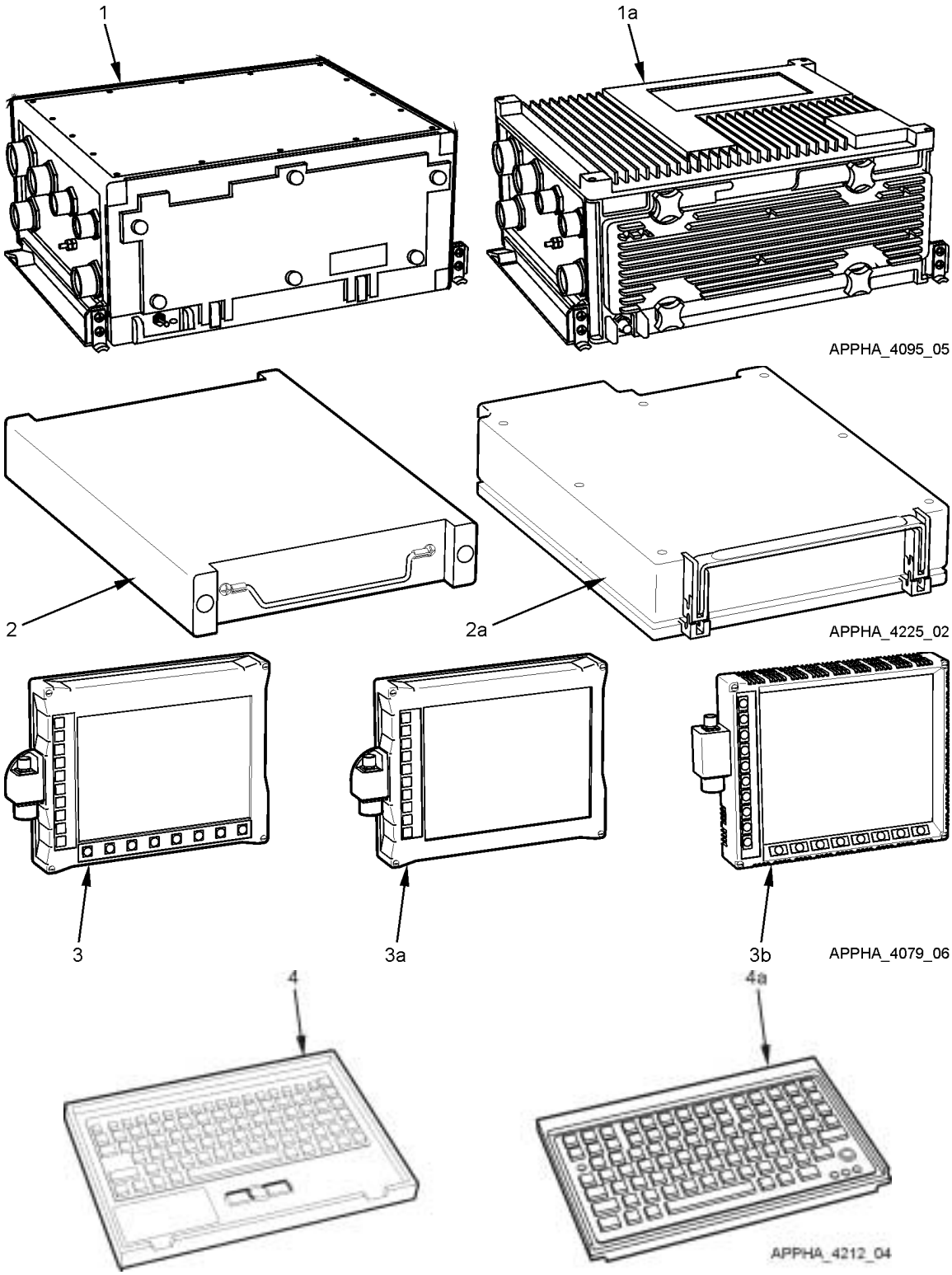
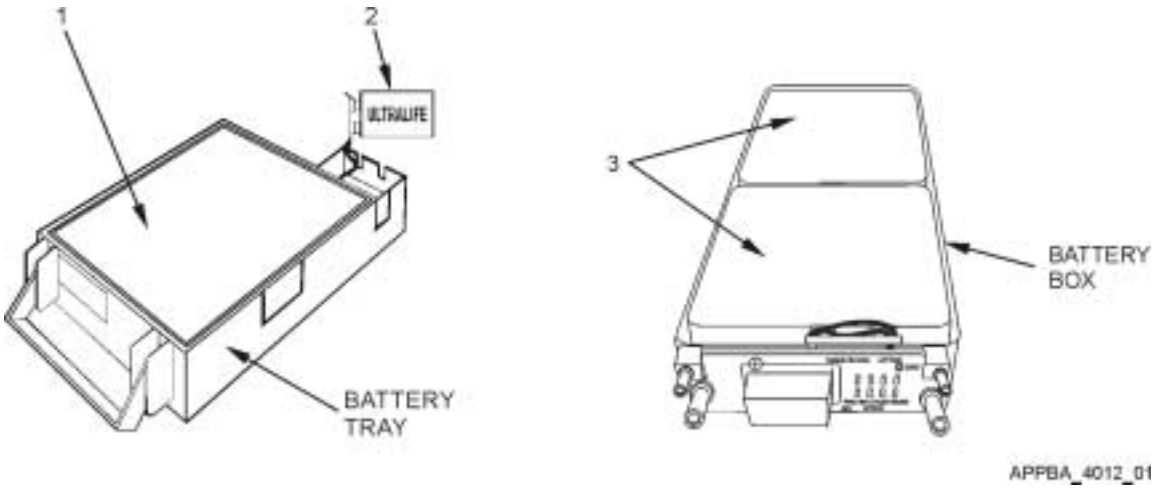

1
1a
APPHA_4095_05
2
2a
APPHA_4225_02
3
3a
3b
APPHA_4079_06
4
4a
APPHA_4212_04

Table 1. Components Of End Item List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
		(**NOTE:** The following PU configurations cannot be used with the Disk Drive Unit referenced under 2a.)			
1	7021-01-475-0217	COMPUTER, DIGITAL Processor Unit (PU) (0J198) 881291-1	31G, 31H	EA	1
	7021-01-487-0579	COMPUTER, DIGITAL Processor Unit (PU) (0J198) 881291-3	31G, 31H		
	7021-01-496-2126	COMPUTER, DIGITAL Processor Unit (PU) (0J198) 881291-4	31G, 31H		
		(**NOTE:** The following PU configurations cannot be used with the Disk Drive Unit referenced under 2.)			
1a	7021-01-474-3793	COMPUTER, DIGITAL Processor Unit (PU) (0J198) 881292-1	31G, 31H		
	7021-01-487-0578	COMPUTER, DIGITAL Processor Unit (PU) (0J198) 881292-2	31G, 31H		
	7021-01-496-4263	COMPUTER, DIGITAL Processor Unit (PU) (0J198) 881292-3	31G, 31H		
		(**NOTE:** The following Disk Drive Unit configuration cannot be used with the PU referenced under 1a.)			
2	7025-01-474-5753	DISK DRIVE UNIT Removable Hard Disk Drive Cartridge (RHDDC) (0J198) 881296-1	31G, 31H	EA	1
		(**NOTE:** The following Disk Drive Unit configurations cannot be used with the PU referenced under 1.)			
2a	7025-01-474-3789	DISK DRIVE UNIT Removable Hard Disk Drive Cartridge (RHDDC) (0J198) 881297-1	31G, 31H		
	7025-01-487-0580	DISK DRIVE UNIT Removable Hard Disk Drive Cartridge (RHDDC) (0J198) 881297-2	31G, 31H		
3	7025-01-475-0229	DISPLAY UNIT (DU) 10" Display Unit (DU) (0J198) 881293-1, -2	31G	EA	1
3a	7025-01-475-0282	DISPLAY UNIT (DU) 12.1" Display Unit (DU) (0J198) 881294-1, -2	31H		
3b	7025-01-475-0280	DISPLAY UNIT (DU) Display Unit (DU) (0J198) 881299-1, -2	31G, 31H		
4	7025-01-474-3791	KEYBOARD, DATA ENTRY Keyboard Unit (KU) (0J198) 881295-1, -2, -5	31G, 31H	EA	1
	7025-01-487-0581	KEYBOARD, DATA ENTRY Keyboard Unit (KU) (0J198) 881295-3, -4	31G, 31H		
4a	7025-01-474-3792	KEYBOARD, DATA ENTRY Keyboard Unit (KU) (0J198) 881298-1	31G, 31H		
	7025-01-496-9879	KEYBOARD, DATA ENTRY Keyboard Unit (KU) (0J198) 881298-2	31G, 31H		



Table–2. Basic Issue Items List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
NSN 1	**NOTE** Only one of these 13.2V batteries is used with the NSN 7021-01-474-3793/NSN 7021-01-487-0578/NSN 7021-01-496-4263 Computer Set, Digital.				
	5820-01-215-6181	13.2V NICKEL METAL HYDRIDE RECHARGEABLE BATTERY RHDDC Battery 0J198 BB-388A/U	31G, 31HEA1		
NSN 2	**NOTE** This 9-Volt battery is used only with NSN 7021-01-474-3793/NSN 7021-01-487-0578/NSN 7021-01-496-4263 Computer Set, Digital.				
	6135-01-369-9792	9-VOLT LITHIUM NON-RECHARGEABLE BATTERY 9V Battery 0J198	31G, 31HEA1		
NSN 3	**NOTE** Two of these 13.2V batteries are used with the NSN 7021-01-475-0217/NSN 7021-01-487-0579/NSN 7021-01-496-2126 Computer Set, Digital.				
	5820-01-215-6181	13.2V NICKEL METAL HYDRIDE RECHARGEABLE BATTERY RHDDC Battery 0J198 BB-388A/U	31G, 31HEA2		

END OF WORK PACKAGE

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

INTRODUCTION

Scope. This appendix lists additional items you are authorized for the support of the AN/UYK-128(V) Computer.

General. The Additional Authorization Items (AAI) List identifies items that do not have to accompany the AN/UYK-128(V) Computer and that do not have to be turned in with it. These items are all authorized to you by Common Table of Allowance (CTA), Modified Table or Organization and Equipment (MTOE), Table of Distribution and Allowances (TDA), or Joint Table of Allowances (JTA).

Explanation of Columns.

Column (1) - National Stock Number (NSN). Identifies the stock number, if any, of the item to be used for requisitioning purposes.

Column (2) - Description, CAGEC, and P/N. Indicates the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the Commercial and Government Entity Code (CAGEC) (in parentheses) and then the Part Number (P/N).

Column (3) - Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment. These codes are identified in the following table.

Table 3. AAL Usable On Code

CODE	USED ON	Platform Installation Kit Part Number
31U	M981 Fire Support Team Vehicle (FIST-V)	861857
31V	M577 Medic Vehicle	861848
31W	M577 Mortar Command Post	860849
31X	M1070 Heavy Equipment Transporter (HET)	881245
31Y	M1068 with Mesh Net	861854-2
31Z	M1037/M1097 Rigid Wall Shelter (RWS)	872837
32A	M1068 Standardized Integrated Command Post Shelter (SICPS)	861854-1
32B	M1068 Fire Detection Center Vehicle (FDCV)	865974
32C	M934 Expando Van	861856
32D	Standardized Integrated Command Post Shelter (SICPS) Tent	881244
32E	M113 Common	872828
32F	M60 Armored Vehicle Launcher Bridge/Mine (AVLB/M)	872829
32G	M88A1 Heavy Equipment Recovery Combat Utility Vehicle (HERCULES)	865994
32H	M992 Field Artillery Ammunition Support Vehicle (FAASV)	866019
32J	M985/M978/M1074/M1075 Heavy Expanded Mobility Tactical Truck (HEMTT)/Palletized Load System (PLS)	872832

INTRODUCTION–Continued

Table 3. AAL Usable On Code–Continued

CODE	USED ON	Platform Installation Kit Part Number
32K	M997 Ambulance	872834
32L	M548A3 Multiple Delivery Mine System (VOLCANO)	865987
32M	M1064 Mortar Carrier	865977
32N	M35A3 2 $\frac{1}{2}$-Ton Cargo	872830
32P	M1031 Commercial Utility Cargo Vehicle (CUCV)	872831
32Q	M923 5-Ton Cargo	872833
32R	M93 Fox - Nuclear, Biological and Chemical (NBC) Recon	881257
32S	M9 Armored Combat Earthmover (ACE)	865986
32T	HMMWV with I-Rack	872835
32U	M109A6 Paladin	881246
32V	M1097 Avenger	881239
32W	Q36 HMMWV	889513–1
32X	DEUCE	881261–1
45F	FMTV, 2 $\frac{1}{2}$-Ton Truck	889527–1
45G	M113 TAC-P	889545–1
45H	M1113 ECV HMMWV	889565–1
45J	M1114 Up-Armored HMMWV	889507–1

Column (4) - Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number (NSN) shown in column (1), if any.
Column (5) - Qty. Rec'm. Indicates the quantity recommended.

Table 4. Additional Authorization List

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION CAGEC AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
5995–01–478–4776	W1 CABLE ASSEMBLY 180 INCH (0J198) 861880-1	31Y, 32A, 32B, 32R	EA	1
5995–01–478–4947	W1 CABLE ASSEMBLY 72 INCH (0J198) 861880-2	32F	EA	1
5995–01–478–4950	W1 CABLE ASSEMBLY 264 INCH (0J198) 861880-3	32C	EA	1
5995–01–478–4951	W1 CABLE ASSEMBLY 264 INCH (0J198) 861880-4	32P	EA	1
5995–01–478–5078	W1 CABLE ASSEMBLY 60 INCH (0J198) 861880-5	32G	EA	1
5995–01–478–4952	W1 CABLE ASSEMBLY 72 INCH (0J198) 861880-6	32S, 32X, 45F	EA	1

Table 4. . Additional Authorization List–Continued

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION CAGEC AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
5995–01–478–4963	W1 CABLE ASSEMBLY 144 INCH (0J198) 861880-7	32M	EA	1
5995–01–478–5012	W1 CABLE ASSEMBLY 180 INCH (0J198) 861880-8	32E, 31X, 45G	EA	1
5995–01–478–5069	W1 CABLE ASSEMBLY 264 INCH (0J198) 861880-9	32L	EA	1
5995–01–478–4901	W1 CABLE ASSEMBLY 108 INCH (0J198) 866003-1	32J, 32K	EA	1
5995–01–478–4903	W1 CABLE ASSEMBLY 168 INCH (0J198) 866003-2	32H, 32N		
5995–01–478–4908	W1 CABLE ASSEMBLY 60 INCH (0J198) 866003-3	32T, 45H, 45J	EA	1
5995–01–478–4890	W1 CABLE ASSEMBLY 72 INCH (0J198) 861882-1	31W	EA	1
5995–01–478–4892	W1 CABLE ASSEMBLY 246 INCH (0J198) 861882-2	31U, 31V	EA	1
5995–01–478–4897	W1 CABLE ASSEMBLY 180 INCH (0J198) 861888-1	31Z	EA	1
5995–01–478–4914	W1 CABLE ASSEMBLY 48 INCH (0J198) 866004-1	32Q	EA	1
5995–01–478–4870	W1 CABLE ASSEMBLY (0J198) 881279-1	32U	EA	1
	W1 CABLE ASSEMBLY (0J198) 889520–1	32W	EA	1
5995–01–478–4861	W400 CABLE ASSEMBLY 19 INCH (3A768) 443-50060	32V	EA	1
5995–01–478–4876	W2 CABLE ASSEMBLY 60 INCH (0J198) 881327-1	31Y, 32A, 32B, 32C, 32D, 32L, 32N, 32Q, 32S, 32T, 32W, 32X, 45H, 45J	EA	1
5995–01–478–4873	W2 CABLE ASSEMBLY 96 INCH (0J198) 881327-2	31U, 31V, 31W, 31Z, 32E, 32F, 32K, 32U, 32V, 45G	EA	1
5995–01–478–4877	W2 CABLE ASSEMBLY 144 INCH (0J198) 881327-3	32G, 32H, 32P NOTE: UOC 32H requires two (2) cables.	EA	1
5995–01–478–4880	W2 CABLE ASSEMBLY 180 INCH (0J198) 881327-4	31X, 32J, 32M, 32R, 45F	EA	1
5995–01–478–4891	W3P CABLE ASSEMBLY 72 INCH (0J198) 881335-1	32D, 32T, 32W, 45F, 45H	EA	1
5995–01–478–4893	W3P CABLE ASSEMBLY 120 INCH (0J198) 881335-2	31U, 31W, 32E, 32J, 32N, 32Q, 45G, 45J	EA	1

Table 4. . Additional Authorization List–Continued

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION CAGEC AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
5995–01–478–4898	W3P CABLE ASSEMBLY 180 INCH (0J198) 881335-3	31X, 31Y, 31Z, 32A, 32B, 32F, 32K, 32L, 32P, 32S, 32X	EA	1
5995–01–478–4906	W3P CABLE ASSEMBLY 360 INCH (0J198) 881335-4	31V, 32C, 32G, 32H, 32M	EA	1
5995–01–478–4913	W3N CABLE ASSEMBLY 72 INCH (0J198) 881336-1	31W, 31Y, 32A, 32B, 32F, 32P, 32T, 32U, 45F, 45H, 45J	EA	1
5995–01–478–4922	W3N CABLE ASSEMBLY 120 INCH (0J198) 881336-2	32G, 31U, 32J, 32Q, 32S, 32X	EA	1
5995–01–478–5080	W3N CABLE ASSEMBLY 180 INCH (0J198) 881336-3	31X, 31Z, 32K, 32N, 32R	EA	1
5995–01–478–4926	W3N CABLE ASSEMBLY 360 INCH (0J198) 881336-4	31V, 32C, 32D, 32E, 32H, 32L, 32M, 45G	EA	1
	W3N CABLE ASSEMBLY (0J198) 881336–5	32W	EA	1
5995–01–478–4907	W402 CABLE ASSEMBLY 36 INCH (3A768) 443-50062	32V	EA	1
5995–01–478–4895	W3M CABLE ASSEMBLY 240 INCH (0J198) 881333-1	32R	EA	1
5995–01–478–4924	W4 CABLE ASSEMBLY 180 INCH (0J198) 881270-1	31U, 32A, 32B, 32G, 32H	EA	1
5995–01–478–4928	W4 CABLE ASSEMBLY 72 INCH (0J198) 881270-2	31V, 32E, 32F, 32S, 45G	EA	1
5995–01–478–4934	W4 CABLE ASSEMBLY 264 INCH (0J198) 881270-3	32L, 32M, 32R	EA	1
5995–01–478–5081	W4 CABLE ASSEMBLY 120 INCH (0J198) 881270-4	31W	EA	1
5995–01–478–4910	W403 CABLE ASSEMBLY 42 INCH (3A768) 443-50063	32V	EA	1
5995–01–478–4938	W4MN CABLE ASSEMBLY 180 INCH (0J198) 881271-1	31Y	EA	1
4920–01–478–3722	CABLE ASSEMBLY SERIAL INTERFACE ADAPTER (SIAD) (0J198) 881331-1	31U, 31V, 31W, 31X, 31Y, 31Z, 32A, 32B, 32C, 32D, 32E, 32F, 32G, 32H, 32J, 32K, 32L, 32M, 32N, 32P, 32Q, 32R, 32S, 32T, 32U, 32W, 32X, 45F, 45G, 45H, 45J	EA	1

Table 4. . Additional Authorization List–Continued

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION CAGEC AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
5995–01–478–5079	W1A CABLE ASSEMBLY (0J198) 881278-1	32U	EA	1
5995–01–478–4899	W401 CABLE ASSEMBLY 37 INCH (3A768) 443-50061	32V	EA	1
5995–01–478–4862	W1D CABLE ASSEMBLY 24 INCH (0J198) 881321-1	32D	EA	1
595–01–478–4866	W1E CABLE ASSEMBLY 192 INCH (0J198) 881326-1	32D	EA	1
5995–01–478–4921	W6 CABLE ASSEMBLY 180 INCH (0J198) 881289-1	32D	EA	1
	W6 CABLE ASSEMBLY (0J198) 881289-2	32X, 45F	EA	1
	W6 CABLE ASSEMBLY (0J198) 881289-3	32W	EA	1
5995–01–478–4935	W3E CABLE ASSEMBLY (0J198) 881284-1	32U	EA	1
	W3EP CABLE ASSEMBLY (0J198) 889514–1	45H	EA	1
5995–01–478–3727	UNIVERSAL SERIAL BUS (USB) REPEATER BOX ASSEMBLY (0J198) 881314-1	32H	EA	1
	(NOTE- The following is not interchangeable with PU NSN7021-01-474-3793/NSN 7021-01-487-0578/NSN 7021-01-496-4263)			
	BATTERY BOX- REMOVABLE (0J198) 59755-1	31U through 45J	EA	1
	(NOTE-The following is not interchangeable with PU NSN7021-01-475-0217/NSN 7021-01-487-0579/NSN 7021-01-496-2126)			
	BATTERY TRAY- REMOVABLE (0J198) 0410-06558-0000	31U through 45J	EA	1
	DTD/MDL (0J198)	31U through 45J	EA	1
	TOUGHBOOK (0J198)	31U through 45J	EA	1

OPERATOR MAINTENANCE

FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2) (VERSION 3.5.4 DRAFT) COMPUTER SET, DIGITAL AN/UYK-128(V)

NSN 7010-01-475-5277 AN/UYK-128(V)1
NSN 7010-01-475-5275 AN/UYK-128(V)2, EIC NA

EXPENDABLE AND DURABLE ITEMS LIST

INTRODUCTION

Scope. This appendix lists expendable and durable items that you will need to operate and maintain the AN/UYK-128(V) Computer. This list is for information only and is not authority to requisition the listed items.

Explaination of Columns. The following paragraphs define the columns in the Expendable and Durable Items List.

Column (1) - Item Number. This number is assigned to the entry in the listing.

Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item. C = Operator/Crew, O = Unit Maintenance

Column (3) - National Stock Number (NSN). This is the NSN assigned to the item. Use the NSN to request or requisition the item.

Column (4) - Description. Indicates the federal Item name, and if required, a description to identify the item.

Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (example: EA and LB). If the U/M differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Table 1. Expendable and Durable Items List

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER	(5) U/M
1	C	7520-01-484-1219	COMPUTER UNIT PEN, STYLUS	
			() 59848-1	EA
2	C	7920-00-205-1711	RAG, Wiping, Cotton, and Cotton Synthetic (81348) DDD-R-30, Grade B (58536) A-A-531	
			(81348/58536) DDD-R-30/A-A-531	LB
3	C	5975-01-274-0220	MOUNTING BASE, Tiedown, Electrical	
			()	LB
4	C	5975-01-265-6900	STRAP, Tiedown, Electrical Components	
			()	LB

END OF WORK PACKAGE

INDEX

INDEX–Continued

INDEX–Continued

INDEX–Continued

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

THEN...JOT DOWN THE INFO ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT. FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
Co. B, 1st BN, 2nd Brigade
Ft. Hood, TX 76445

DATE SENT 16 July 2001

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-7010-326-10		Operator's Manual Computer Set, Digital AN/UYK-128(V)

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
1-3	1-1.2		
2-14		2-10	
3-10			3-1

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

The RHDDC is discussed in the paragraph but is not shown in the illustration. Need to illustrate the RHDDC.

Figure 2-10 shows task bar labeled toward bottom of illustration. Unclear whether task bar is a button or whole bottom bar.

Table 3-1, step 12. Add RHDDC to list of components that needs to be present and inspected to ensure no damage after mission is completed.

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
John Doe SGT 532-8321

SIGN HERE
John Doe

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DEPARTMENT OF THE ARMY
Co. B, 1st BN, 2nd Brigade
Ft. Hood, TX 76445
OFFICIAL BUSINESS

SAMPLE

Commander
US Army Communications-Electronics
Command and Fort Monmouth
ATTN: AMSEL-LC-LEO-D-CS-CFO
Fort Monmouth, New Jersey 07703-5006

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PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-7010-326-10	07 September 2001	Operator's Manual Computer Set, Digital AN/UYK-128(V)

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TM 11-7010-326-20	07 September 2001	Installation Kit Technical Bulletin Computer Set, Digital AN/UYK-128(V)

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PENDING

FBCMI_4018_01

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE
1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS
1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE
1 Millimeter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Millimeters = 32.82 Fluid Ounces

SQUARE MEASURE
1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Inches
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

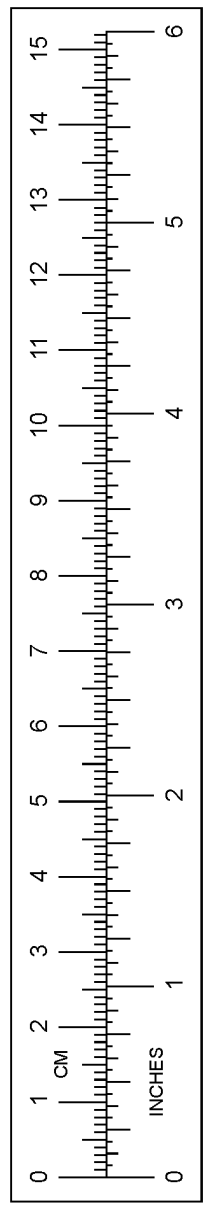
CUBIC MEASURE
1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

TEMPERATURE
5/9(°F - 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 °C + 32 = °F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters-Meters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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